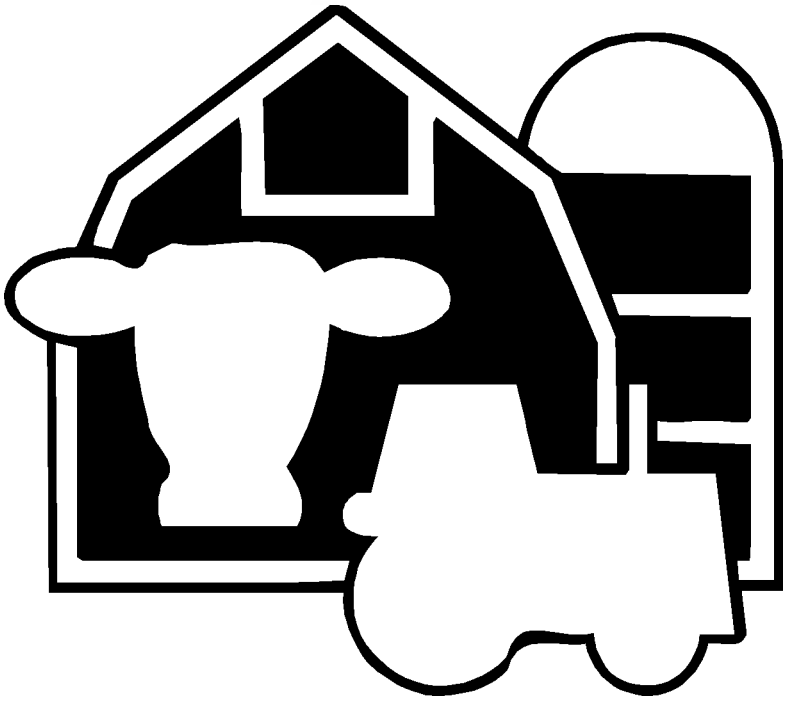
DAIRY FARM MANAGEMENT

OCTOBER 2000 *R.B. 2000-03*

BUSINESS SUMMARY NEW YORK STATE 1999



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ABSTRACT

Business and financial records for 1999 from 314 New York dairy farm businesses are summarized and analyzed. This analysis demonstrates the use of cash accounting with accrual adjustments to measure farm profitability, cash flow, financial performance, and costs of producing milk. Traditional methods of analyzing dairy farm businesses are combined with improved evaluation techniques to show the relationship between good management performance and financial success.

The farms in the project averaged 224 cows per farm and 21,439 pounds of milk sold per cow, which represent above average size and management level for New York dairy farms. Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged $122,210 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 9.7 percent.

Differences in profitability between farms continue to widen. The top 10 percent of farms average net farm income excluding appreciation was $578,366, while the lowest 10 percent was a negative $10,114. Rates of return on equity with appreciation ranged from 36 percent to negative 31 percent from the highest 10 percent to the lowest 10 percent of farms.

Farms adopting bovine somatotropin (bST) experienced greater increases in milk production, had larger herds and were more profitable than farms not adopting bST. Farms adopting rotational grazing generally produced less milk per cow than non-grazing farms, but had somewhat lower costs of production and higher profitability. However, one should not conclude that adoption of these technologies alone were responsible for differences in performance.

Large freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. Farms milking three times a day (3X) were larger, produced more milk per cow and were more profitable than herds milking two times per day (2X). Operating cost per cwt. of milk was $0.03/cwt. higher for 3X than 2X milking herds, while output per cow was 4,159 pounds higher.

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INTRODUCTION*

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural educational program in New York State. The Department of Agricultural, Resource, and Managerial Economics of the College of Agriculture and Life Sciences at Cornell University, and County Extension staff, cooperate in sponsoring DFBS projects. In 1999, nearly 400 dairy farms participated. Business records submitted by dairy farmers from 46 counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. Each cooperator receives a detailed summary and analysis of his or her business. All educators are using a microcomputer in their offices and/or on the farm to process and return the individual farm business reports for immediate use. Regional reports are prepared by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with regional averages. The DFBS program helps farmers improve accounting and financial analysis techniques, develop managerial skills and solve business and financial management problems.

Individual farm records from the 6 regions and 46 counties of the State have been combined and the total data set analyzed to determine the status and study the effects of changes in price, technology, and management on dairy farm incomes (Figure 1, page 2). This study provides current dairy farm business information for use by farmers, Cooperative Extension staff, teachers, and others concerned with the New York dairy industry.

Farms Included

Data from 314 specialized dairy farms are included in the main body of this report. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were proportionately represented (Figure 1, page 2). Participants represent nearly 4 percent of the milk cow operations in New York (see Appendix Table A3). The 314 specialized dairy farms represent a cross section of better than average commercial dairy farm owner/operators in the State. Dairy farm renters, dairy-cash crop farmers with crop sales exceeding 10 percent of milk sales, and part-time dairy operators have been excluded from the main body of this report. Dairy farm renters are summarized separately in the supplemental information section of the publication.

Features

Accrual adjustment procedures have been used to provide the most accurate accounting of farm receipts and farm expenses for measuring farm profits. An explanation of these procedures is found on page 9. Four measures of farm profits; net farm income, labor and management income, return on equity and all capital, and return to all labor and management are calculated on pages 11 through 14. The balance sheet is presented with the current portion of intermediate and long term debt identified as a current liability, on pages 14 and 15. The statement of owner equity, which shows the interrelationship between farm profitability, non-farm cash flows and net worth is presented on page 17. A detailed cash flow statement, including budgeting data and debt repayment analysis is presented on pages 18 through 20.

The whole farm method of calculating the cost of producing milk is detailed on pages 28 through 33. The operating cost, purchased inputs cost and total cost of producing 100 pounds of milk are developed and analyzed. Farm business charts for farms with conventional and freestall housing are presented on pages 61 through 65. Specific studies of the performance of dairy farms using bST, rotational grazing and three times (3X) a day milking are presented on pages 68, 71 and 74.

Acknowledgements

The authors appreciate the outstanding assistance provided by Faye Butts and Quinn Avery with wordprocessing, proofreading and distribution of the publication. The authors also wish to acknowledge extension field staff and cooperating farmers for their invaluable cooperation on this project. In addition, the authors appreciate the comments provided by Eddy LaDue and Loren Tauer.

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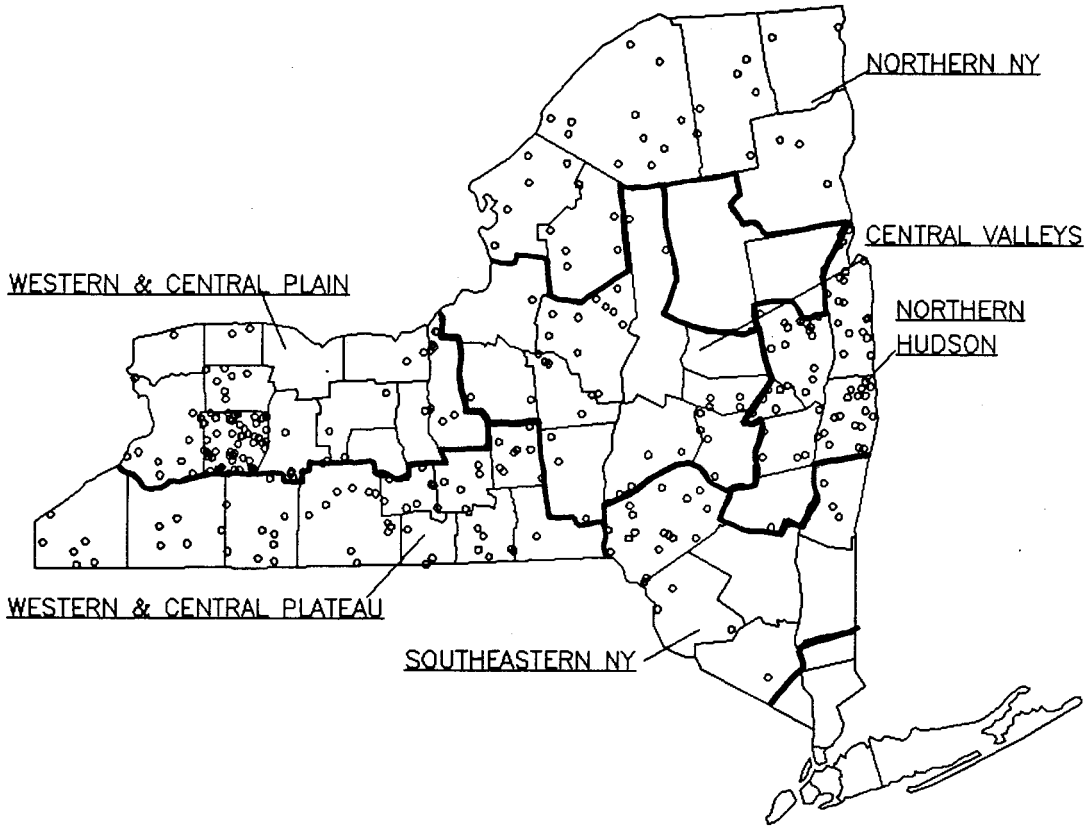
* This report was written by Wayne A. Knoblauch, Professor; Linda D. Putnam, Extension Support Specialist, in the Department of Agricultural, Resource, and Managerial Economics at Cornell University, and Jason Karszes, Senior Extension Associate, Pro-Dairy.

Figure 1.

LOCATION OF THE 314 NEW YORK DAIRY FARMS IN THE 1999 DAIRY FARM BUSINESS SUMMARY



1999 Regional Summary Publications

Region	Publications	Author(s)
Western and Central Plain	E.B. 2000-03	Wayne A. Knoblauch, Linda D. Putnam, Jason Karszes, Steve Richards, John Hanchar, Carry Oostveen, Bruce Dehm, George Allhusen & Vinton Smith.
Northern Hudson	E.B. 2000-05	George J. Conneman, Linda D. Putnam, Cathy S. Wickswat, Sandra Buxton & Dayton Maxwell
Western and Central Plateau	E.B. 2000-06	Wayne A. Knoblauch, Linda D. Putnam, Sheila Marshman, James W. Grace, Joan S. Petzen, Andrew N. Dufresne & Janet Allard
Southeastern New York	E.B. 2000-07	Wayne A. Knoblauch, Linda D. Putnam, Michael Dennis, Stephen E. Hadcock, Larry R. Hulle, Mariane Kiraly, Colleen McKeon & Joseph J. Walsh
Northern New York	E.B. 2000-08	Wayne A.Knoblauch, Linda D. Putnam, William Van Loo, Peggy Murray, Anita Deming, Chris Nobles & Patty Beyer
Central Valleys	E.B. 2000-09	Eddy L. LaDue, Doug Bowne, Zaid Kurdieh, Carry Oostveen, A. Edward Staehr, Charles Z. Radick, Jackie Hilts, Karen Baase, Jason Karszes & Linda D. Putnam

THIRTY YEARS OF NEW YORK STATE DAIRY FARM BUSINESS DATA

New York dairy farming has changed dramatically over the past 30 years (Table 1, page 4). Dairy cows per farm increased 273 percent between 1969 and 1999 and more than one-third of that increase occurred in the last 10 years. Milk output per cow increased nearly 70 percent and the largest increase occurred between 1989 and 1999. Labor efficiency is up 34 percent even though there was practically no change from 1969 to 1979. The operating cost of producing milk has increased more than 430 percent with the big jump occurring between 1969 and 1979.

There is a large increase in farm capital invested per farm, up 1,076 percent since 1969. Farm net worth excluding deferred taxes has increased 761 percent over the last 30 years. Net farm income per farm has increased 35 percent (adjusted for 1999 dollars) but return on capital has not improved since 1969. Labor and management income per operator is down 30 percent in the last 30 years (adjusted for 1999 dollars).

FOUR YEARS OF VARIABILITY

Recognition and evaluation of the progress that has occurred on DFBS farms can best be achieved by studying the same farms over a period of time. Table 2 presents average data from 179 farms that have been DFBS cooperators each year since 1996. Chart 1 shows the price received for milk in comparison to the operating cost of producing a hundredweight of milk for these farms. The high milk price and lower costs in 1998 and 1999 provided dairy farmers with excellent returns. This comes after 1997, a year when milk prices were soft and margins were less than half those in 1998. Good operating margins did exist in 1996 at about $3.00 per hundredweight.

Net farm income without appreciation in 1999 was 62 percent above the 1996 average largely due to lower cost of production due to lower feed costs and less interest paid. However, two of the three previous years were good years for dairy farm profits with 1998 being an excellent year. Net worth declined by a small amount in 1997, a first in recent history.

The last 4 years have been a period requiring critical decision making and improved management skills on New York dairy farms. Risk management skills, including output price management, are becoming more important to farm business success.

Chart 1.

OPERATING COST OF PRODUCING MILK AND PRICE RECEIVED FOR MILK
Same 179 New York Dairy Farms, 1996-1999

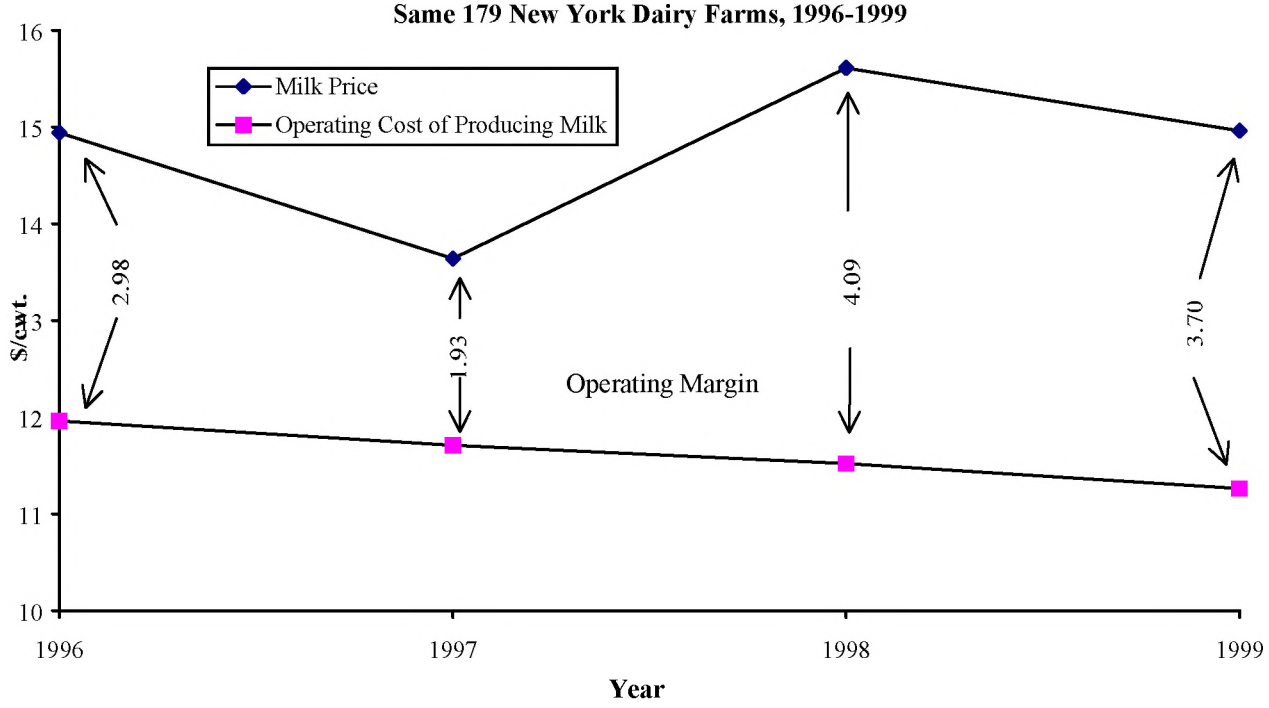


Table 1.

COMPARISON OF FARM BUSINESS SUMMARY DATA
New York Dairy Farms, 1969 - 1999

Selected Factors	1969	1979	1989	1999
Number of farms	511	610	409	314
Size of Business				
Average number of cows	60	75	104	224
Average number of heifers	40	53	83	164
Milk sold, cwt.	7,617	10,698	17,975	47,932
Worker equivalent	2.1	2.7	3.30	5.71***
Total tillable acres	159*	228*	316	516
Rates of Production				
Milk sold per cow, lbs.	12,700	14,300	17,259	21,439
Hay DM per acre, tons	2.8	2.7	2.6	2.9
Corn silage per acre, tons	16	14	13	16
Labor Efficiency				
Cows per worker	29	28	32	39***
Milk sold per worker, lbs.	362,700	400,700	544,598	839,432***
Cost Control				
Grain & concentrate purchased as % of milk sales	24%	27%	27%	25%
Dairy feed & crop expense per cwt. milk	$1.81	$4.24	$4.92	$4.75
Operating cost of producing cwt. milk	$2.08	$7.79	$10.46	$11.22
Total cost of producing cwt. milk	$4.55	$12.78	$14.74	$14.31
Milk receipts per cwt. milk	$5.80	$11.90	$14.53	$14.91
Capital Efficiency				
Total farm capital	$121,221	$394,900	$666,328	$1,426,521
Farm capital per cow	$2,020	$5,100	$6,407	$6,368
Machinery & equipment per cow	$450	$910	$1,154	$1,163
Real estate per cow	$950	$2,440	$2,977	$2,562
Livestock investment per cow	$482	$1,417	$1,368	$1,525
Asset turnover ratio	0.49	0.43	0.45	0.59
Profitability (in 1999 dollars)****				
Net farm income without appreciation	------	$119,426	$66,606	$122,210
Net farm income with appreciation	$112,012	$142,957	$100,480	$151,175
Labor & management income per operator/manager	$61,376	$50,398	$24,189	$42,942
Rate of return on:				
Equity capital with appreciation	------	16.8%	9.8%	12.0%
All capital with appreciation	------	13.3%	9.4%	9.7%
All capital without appreciation	------	10.8%	5.6%	7.7%
Financial Summary, End Year				
Farm net worth	$100,541**	$261,398	$468,848	$865,626
Change in net worth with appreciation	------	$43,900	$45,260	$81,992
Debt to asset ratio	0.29**	0.37	0.32	0.42
Farm debt per cow	$700**	$1,930	$2,048	$2,702

*Acres of cropland harvested.
**Average of 159 dairy farm cooperators submitting financial information in 1970.
***Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.
****Adjusted for inflation using Consumer Price Index – 1999 dollars.

Table 2.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 179 New York Dairy Farms, 1996 - 1999

Selected Factors	1996	1997	1998	1999
Milk receipts per cwt. milk	$ 14.94	$ 13.64	$ 15.61	$ 14.96
Size of Business				
Average number of cows	195	207	220	230
Average number of heifers	144	153	165	174
Milk sold, cwt.	40,281	43,483	46,237	49,908
Worker equivalent*	5.06	5.31	5.49	5.76
Total tillable acres	463	484	501	518
Rates of Production				
Milk sold per cow, lbs.	20,655	21,010	21,051	21,730
Hay DM per acre, tons	2.8	2.6	3.1	3.0
Corn silage per acre, tons	16	16	19	17
Labor Efficiency				
Cows per worker*	39	39	40	40
Milk sold per worker, lbs.*	796,072	818,897	842,197	866,458
Cost Control				
Grain & concentrate purchased as % of milk sales	31%	33%	26%	25%
Dairy feed & crop expense per cwt. milk	$ 4.75	$ 5.33	$ 5.02	$ 4.72
Operating cost of producing cwt. milk	$ 11.96	$ 11.71	$ 11.52	$ 11.26
Total cost of producing cwt. milk	$ 14.97	$ 14.56	$ 14.47	$ 14.25
Hired labor cost per cwt.	$ 2.01	$ 2.02	$ 2.15	$ 2.26
Interest paid per cwt.	$ 0.88	$ 0.90	$ 0.91	$ 0.78
Labor & machinery costs per cow	$ 1,037	$ 1,022	$ 1,070	$ 1,170
Capital Efficiency, Average for Year				
Farm capital per cow	$ 6,197	$ 6,206	$ 6,263	$ 6,534
Machinery & equipment per cow	$ 1,074	$ 1,090	$ 1,120	$ 1,171
Real estate per cow	$ 2,681	$ 2,655	$ 2,607	$ 2,650
Livestock investment per cow	$ 1,463	$ 1,467	$ 1,480	$ 1,523
Asset turnover ratio	0.56	0.52	0.60	0.59
Profitability				
Net farm income without appreciation	$ 79,996	$ 42,923	$ 139,636	$ 129,237
Net farm income with appreciation	$ 92,839	$ 52,295	$ 163,702	$ 160,010
Labor & management income per operator/manager	$ 23,014	$ 738	$ 58,406	$ 46,185
Rate return on:				
Equity capital with appreciation	6.6%	0.9%	14.6%	12.3%
All capital with appreciation	6.9%	3.6%	11.5%	10.0%
All capital without appreciation	5.9%	2.9%	9.8%	8.0%
Financial Summary, End Year				
Farm net worth	$ 750,908	$ 746,688	$ 855,741	$ 952,724
Change in net worth with appreciation	$ 50,531	$ -1,265	$ 111,091	$ 90,353
Debt to asset ratio	0.40	0.43	0.40	0.39
Farm debt per cow	$ 2,476	$ 2,638	$ 2,565	$ 2,586
Debt coverage ratio	1.44	0.91	1.78	1.66

*Based on hours actually worked by owner/operator instead of standard 12 months per full-time owner/operator.

ADJUSTING PROFIT, PRICE AND COSTS FOR INFLATION

Labor and management income per operator in 1998 was at an all time high when measured in nominal (actual) value (Chart 2). Even when prior year's data are adjusted for inflation, labor and management incomes per operator did not exceed $25,000 in comparison to over $55,000 in 1998 and nearly $43,000 in 1999. The reader is reminded that the average herd size of DFBS participants steadily increased from 107 cows to 224 cows over this period.

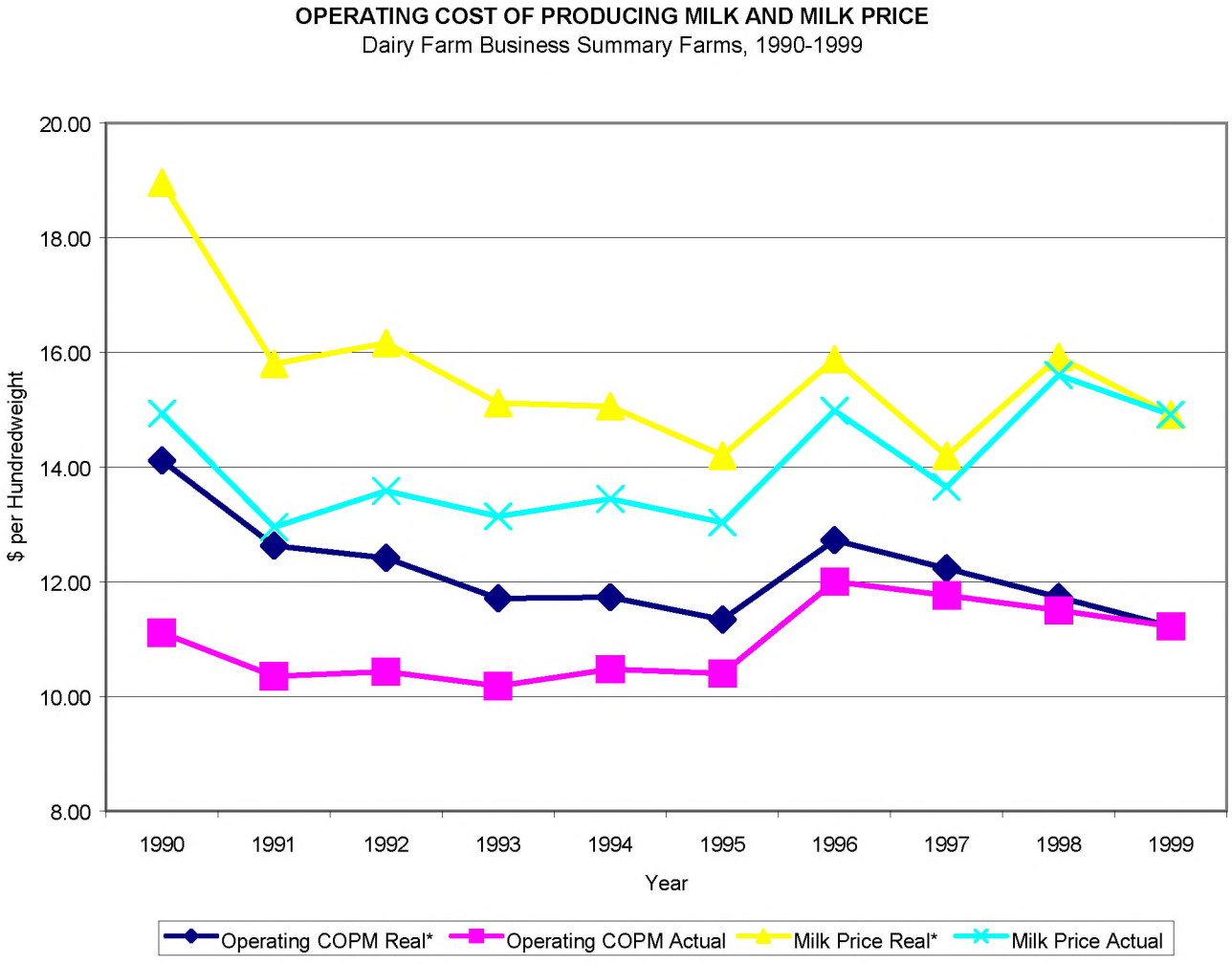
Chart 2.

*Adjusted for inflation using the Consumer Price Index–1999 dollars.

The same cannot be said about milk prices. Milk prices in 1999 averaged $14.91/cwt in actual dollars (Chart 3). In 1990, milk prices adjusted for inflation, in 1999 dollars, would have been about $19.00/cwt. Milk prices, although high in 1999, were not as high when measured in real dollars.

Operating cost of producing milk (actual) had been very constant from 1990 through 1995, feed costs increased in 1996 and so did operating costs of producing milk. Operating costs have been somewhat lower in 1997 through 1999, but not reaching prior year levels. Real costs of producing milk have been on a downward trend over this 10 year period.

Chart 3



*Adjusted for inflation using the Consumer Price Index–1999 dollars.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics, the number of farms reporting these characteristics, and listing of the average labor, land, and dairy cattle resources used in 1999 are presented in the following table.

Table 3.

BUSINESS CHARACTERISTICS AND RESOURCES USED
314 New York Dairy Farms, 1999

Dairy Livestock (number)	Cows	Heifers
Beginning of Year	215	159
End of Year	231	166
Average for Year	224	164

Type of Business	Number	Percent
Sole Proprietorship	167	53
Partnership	101	32
Limited Liability Corp	20	6
Subchapter S Corp.	21	7
Subchapter C Corp	5	2

Barn Type	Number	Percent
Stanchion	105	33
Freestall	187	60
Combination	22	7

Milking System	Number	Percent
Bucket & Carry	2	1
Dumping Station	4	1
Pipeline	116	37
Herringbone Conventional	106	34
Herringbone Rapid	16	5
Parallel	43	14
Parabone	4	1
Rotary	0	0
Other	23	7

Milking Frequency	Number	Percent
2 times per day	219	70
3 times per day	74	24
Other	21	6

Business Records	Number	Percent
Account Book	77	25
Accounting Service	57	18
On-Farm Computer	167	53
Other	13	4

Dairy Records	Number	Percent
Testing Service	244	78
On Farm System	15	5
Other	14	4
None	41	13

bST Usage	Number	Percent
Used on <25% of herd	27	9
Used on 25-75% of herd	119	38
Used on >75% of herd	17	5
Stopped using in 1999	5	2
Not used in 1999	146	46

Labor Force	Average	Percent
Operators	21.5	31
Family Paid	4.8	7
Family Unpaid	3.0	5
Hired	39.2	57
Total Months	68.5	100

	Average
Operators (total = 553)	1.76
Age	44
Education	13 years
Estimated Value of Labor & Management	$47,099

Land Used	Farms Reporting Number	Average
Total acres:		
Owned	314	438
Rented	287	278
Tillable acres:		
Owned	314	282
Rented	284	259
Total	314	516

There were 553 full-time operator equivalents on the 314 dairy farms for an average of 1.76 operators per farm. The operators averaged 44 years of age and 13 years of formal education. Additional data on the labor force is in Table 41.

All 314 farm businesses included in the regular dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 284 of the dairy farm owners rented an average of 259 acres of tillable land in 1999. The 314 farms averaged 516 total tillable acres per farm of which 234 acres were rented. Tables 19 and 25 contain additional information on land use and the dairy herd.

Accounting Procedures

Accrual accounting adjustments are made to cash receipts and expenses to measure annual receipts, expenses, and farm profitability more accurately. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting procedures consider changes in accounts payable and receivable, prepaid expenses, and changes in inventory of not only such items as crops and livestock, but also the inventory of production items such as fertilizer, seed and fuel. In this manner, the total cost of production and the total value of production are obtained to provide an accurate representation of profitability in that year.

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory of capital assets into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets are included in the return to farm capital, but excluded from the return to labor and management.

Income Statement - Expenses

The accrual income statement on the following page begins with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

1. Hired labor includes gross wages plus the farm share of social security, workers' compensation insurance, employee health insurance and other employee benefits paid by the farm employer.

2. Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage and all feed purchased for nondairy livestock to allow more thorough analysis of dairy herd feeding costs. The costs of growing grain roughage are not included in cash and accrual feed expenses.

3. Machinery costs represent all the operating costs of using power machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs.

4. Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, such as breeding, veterinary, bedding, milking supplies and custom boarding expenses plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.

5. Crop expenses include the costs of fertilizer, lime, seeds, spray and other crop supplies.

6. Real estate expenses are the direct costs associated with owning and maintaining farmland and buildings.

7. Other includes insurance, the farm share of utilities, interest paid on all farm indebtedness and miscellaneous costs.

8. Expansion livestock is a nonoperating cost included in total expenses.

9. Depreciation of machinery and buildings are nonoperating costs included in total expenses. Depreciation charges are based on those reported for income tax.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 314 farms averaged $1,710 per day and 90 percent of total farm accrual expenses.

Table 4.

CASH AND ACCRUAL FARM EXPENSES
314 New York Dairy Farms, 1999

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses	Percent
Hired Labor	$ 102,145		$235 <<		$ 426		$ 102,335	16
Feed								
Dairy grain & concentrate	194,019		14,144		-731		179,144	29
Dairy roughage	11,311		455		-164		10,692	2
Nondairy livestock	94		1		0		93	<1
Machinery								
Machinery hire, rent & lease	18,980		156 <<		145		18,968	3
Machinery repairs & farm vehicle exp.	37,389		277		86		37,198	6
Fuel, oil & grease	11,902		156		-71		11,676	2
Livestock								
Replacement livestock	11,754		0 <<		-169		11,585	2
Breeding	8,522		477		-26		8,019	1
Veterinary & medicine	23,316		762		26		22,580	4
Milk marketing	23,538		0 <<		-9		23,530	4
Bedding	9,258		96		67		9,229	1
Milking Supplies	16,754		576		-74		16,104	3
Cattle lease & rent	2,529		0 <<		0		2,529	<1
Custom boarding	7,235		99 <<		21		7,157	1
BST expense	11,881		290 <<		53		11,644	2
Other livestock expense	7,671		89		-60		7,522	1
Crops								
Fertilizer & lime	17,790		1,111		-80		16,599	3
Seeds & plants	11,166		1,523		112		9,754	2
Spray & other crop expense	12,196		783		43		11,456	2
Real Estate								
Land, building & fence repair	12,933		-26		53		13,012	2
Taxes	9,823		-26 <<		3		9,852	2
Rent & lease	12,879		51 <<		13		12,841	2
Other								
Insurance	7,822		140 <<		-8		7,675	1
Utilities	14,862		-11 <<		-75		14,798	2
Interest paid	39,919		78 <<		-1		39,840	6
Miscellaneous	8,253		53		66		8,266	1
Total Operating	$ 645,943		$21,489		$ -354		$ 624,100	100
Expansion livestock	$ 12,408		$ 0 <<		$ -145		$ 12,263	
Machinery depreciation							$ 31,585	
Building depreciation							$ 22,913	
TOTAL ACCRUAL EXPENSES							$ 690,861	

Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Change in inventory represents feeds and supplies purchased this year but not used (positive change), and inputs purchased in a prior year and used this year (negative change). For example, purchased dairy grain and concentrate inventory increased $14,144.

Prepaid expenses (noted by « in Table 4) are advance payments made for services and noninventory items. For example, advance payments for rent increased an average of $51 per farm in 1999, and that increase is subtracted from cash rent to determine the correct 1999 accrual rental expense.

Changes in accounts payable reflect supplies/services used in this year's production but not paid for (positive change), and payments for production inputs used in a prior year (negative change).

Accrual expenses are cash expenses adjusted for changes in inventory, prepaid expenses and accounts payable. They are the total costs of inputs actually used in this year's business. Total change in inventory and prepaid expenses equals $21,489, and total change in accounts payable equals $-354.

Income Statement - Receipts

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged $794,822 per farm. Total accrual receipts averaged $813,071 per farm. Accrual receipts were greater than cash receipts due primarily to dairy herd growth and increases in crop inventory. Cow numbers increased an average of 10 head per farm and the homegrown feed inventory per farm increased $12,168. Homegrown feed inventory per cow increased $35 from beginning to end of year.

Table 5.

CASH AND ACCRUAL FARM RECEIPTS
314 New York Dairy Farms, 1999

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts	Percent
Milk sales	$ 726,030				$ -11,501		$ 714,529	89
Dairy cattle	26,368		$ 17,382		206		43,956	5
Dairy calves	5,795				5		5,799	1
Other livestock	2,045		44		-4		2,084	<1
Crops	4,461		12,168		35		16,664	2
Government receipts	18,694		169*		-46		18,817	2
Custom machine work	1,488				-23		1,465	<1
Gas tax refund	242				-12		230	<1
Other	9,699				-155		9,543	1
- Nonfarm noncash capital**			(-) 18				(-) 18	
Total	$ 794,822		$ 29,745		$ -11,495		$ 813,071	100

*Change in advanced government receipts.
**Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received for the sale of farm products, services and government programs.

Accrual receipts represent the value of all farm commodities produced and services actually provided by the farmer during the year. Increases in livestock inventory caused by herd growth and/or quality, are included. Decreases in inventory caused by herd reduction are deducted. Changes in inventories of crops grown are included. Changes in advanced government receipts are the amount by which government payments received for participating in a future year's program have changed from 1998 to 1999. An increase requires a negative adjustment to cash receipts while a decrease is a positive adjustment. Changes in accounts receivable include the difference between the January milk check for December 1999 marketings and the previous January's check, and other delayed payments.

Nonfarm noncash capital are gifts and inheritances of cattle and crops received by the farm owner/operator, and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from outside the farm business. Gifts and inheritances of machinery and real estate are accounted for in Table 12.

Profitability Analysis

Farm owners/operators contribute labor, management, and capital to their businesses. The best combination of these resources produces optimum profits. Farm profits can be measured as the return to all family resources or as the return to one or more individual resources such as labor and management.

Net farm income is the total combined return to the farm operator(s) and other unpaid family members for their labor, management and equity capital. It is the farm family's net annual return from working, managing, financing and owning the farm business. This is not a measure of cash available from the year's business operation. Cash flow is evaluated later in this report.

Net farm income is computed with and without appreciation. Appreciation represents the change in farm inventory values caused by changes in prices during the year. Appreciation is a major factor contributing to changes in farm net worth and must be included in the profitability analysis. Net appreciation totaled $28,965 per farm in 1999. On the average, farm real estate appreciated $14,428 or less than 3 percent of beginning fair market value. Machinery appreciated approximately 2 percent while dairy cattle prices appreciated 2.6 percent in 1999.

Average data from 31 farms with the highest rates of return to all capital (without appreciation) are compared with the 314 farm average in Table 6 and in many of the following tables. Net farm income with appreciation averaged $529,087 per farm on the top 10 percent farms, 250 percent greater than the 314 farm average.

Table 6.

NET FARM INCOME
314 New York Dairy Farms, 1999

Item	Average 314 Farms		Average Top 10% Farms*	
	Per Farm	Per Cow	Per Farm	Per Cow
Total accrual receipts	$ 813,071		$ 2,383,184	
+ Appreciation: Livestock	8,515		6,358	
Machinery	4,996		15,677	
Real Estate	14,428		26,902	
Other Stock & Certificates	1,026		2,132	
= Total including appreciation	$ 842,036		$ 2,434,253	
- Total accrual expenses	690,861		1,905,166	
= Net Farm Income (with appreciation)	$ 151,175	$ 675	$ 529,087	$ 885
Net Farm Income (without appreciation)	$ 122,210	$ 546	$ 478,018	$ 799

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Labor and management income is the part of net farm income without appreciation returned to the operator(s') labor and management. Appreciation is not included as part of the return to labor and management. Labor and management income is determined by deducting the charge for unpaid family labor and the cost of using equity capital at a real interest rate of 5 percent, from net farm income excluding appreciation. The interest charge reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments. Operator(s') labor is not included in unpaid family labor.

Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator provides 12 months of labor and management.

Table 7.

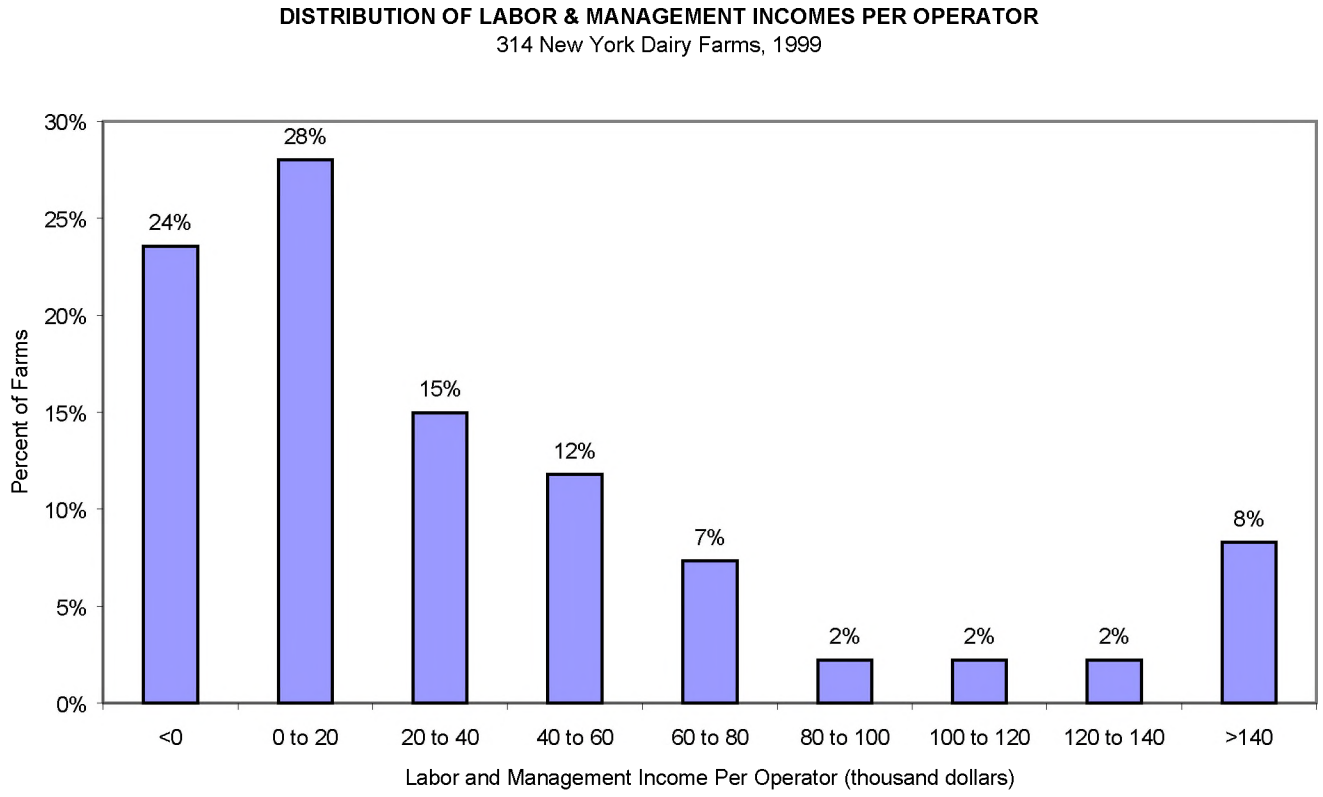
LABOR AND MANAGEMENT INCOME
314 New York Dairy Farms, 1999

Item	Average 314 Farms		Average Top 10% Farms*
Net farm income without appreciation	$122,210		$ 478,018
- Family labor unpaid @ $1,800 per month	$ 5,400		$ 3,420
- Real interest @ 5% on $824,630 equity capital for average & $1,679,297 for the top 10%	41,232		83,965
= Labor & Management Income (1.76 operators)	$ 75,578	(1.68 operators)	$ 390,633
Labor & Management Income per Operator	$ 42,942		$ 232,520

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Labor and management income per operator averaged $42,942 on these 314 dairy farms in 1999. The range in labor and management income per operator was from less than $-89,000 to more than $1.3 million. Returns to labor and management were negative on 24 percent of the farms. Labor and management income per operator ranged from $0 to $99,999 on 64 percent of the farms while 12 percent showed labor and management incomes of $100,000 or more per operator.

Chart 4.



Return to equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner/operator's labor and management and unpaid family labor. The earnings or amount of net farm income allocated to labor and management is the opportunity cost or value of operator(s') labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital. Return to all capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on average total capital. Net farm income from operations ratio is net farm income (without appreciation) divided by total accrual receipts.

Table 8.

RETURN TO CAPITAL
314 New York Dairy Farms, 1999

Item	Average 314 Farms	Average Top 10% Farms*
Net farm income with appreciation	$ 151,175	$ 529,087
- Family labor unpaid at $1,800 per month	5,400	3,420
- Value of operators' labor & management	47,099	64,632
= Return to equity capital with appreciation	$ 98,676	$ 461,035
+ Interest paid	39,840	98,405
= Return to all capital with appreciation	$ 138,516	$ 559,440
Return to equity capital without appreciation	$ 69,711	$ 409,966
Return to all capital without appreciation	$ 109,551	$ 508,371
Rate of return on average equity capital:		
with appreciation	12.0%	27.5%
without appreciation	8.5%	24.4%
Rate of return on all capital:		
with appreciation	9.7%	17.4%
without appreciation	7.7%	15.8%
Net farm income from operations ratio	0.15	0.20

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Return to all labor and management is another measure of profitability of a business that can be calculated. It is calculated by adding the charge for unpaid family labor and the hired labor expense to labor and management income. Table 9 shows that farms with higher return to all capital with appreciation also had significantly higher return per hour to all labor and management.

Table 9.

RETURN TO ALL LABOR AND MANAGEMENT BY RETURN TO ALL CAPITAL WITH APPRECIATION
314 New York Dairy Farms, 1999

	Quartile by Return to All Capital With Appreciation			
Item	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital with appreciation	$ -5,495	$ 33,659	$ 96,723	$ 432,515
Rate of return on all capital with appreciation	-1.0%	4.7%	8.1%	13.2%
Total returns to all labor & management	$ 13,818	$ 46,369	$ 120,780	$ 556,223
Worker equivalent	2.75	3.17	4.80	12.17
Return per worker equivalent	$ 5,025	$ 14,627	$ 25,163	$ 45,704
Returns/hour (2,760 hours/worker/year)	$ 1.82	$ 5.30	$ 9.12	$ 16.56

Farm and Family Financial Status

Evaluating the financial status of the farm business and the farm family is an important part of business analysis. The first step is to inventory all the assets, determine all liabilities and fill out the balance sheet. The second step is to analyze the complete balance sheet by evaluating the relationships between assets and liabilities and changes made during the year.

Table 10.

1999 FARM BUSINESS AND NONFARM BALANCE SHEET
314 New York Dairy Farms, 1999

Farm Assets	Jan. 1	Dec. 31
Current		
Farm cash, checking & savings	$ 7,438	$ 11,648
Accounts receivable	59,483	47,988
Prepaid expenses	1,404	2,126
Feed & supplies	137,393	170,328
Total Current	$ 205,718	$ 232,090
Intermediate		
Dairy Cows:		
owned	$ 224,709	$ 240,347
leased	4,188	3,548
Heifers	98,121	108,345
Bulls & other livestock	1,980	2,060
Mach. & equip. owned	230,327	261,494
Mach. & equip. leased	16,101	13,000
Farm Credit stock	5,417	5,637
Other stock & certificates	23,871	28,147
Total Intermediate	$ 604,714	$ 662,578
Long Term		
Land & buildings:		
owned	$ 550,080	$ 592,967
leased	2,837	2,057
Total Long Term	$ 552,917	$ 595,024
Total Farm Assets	$ 1,363,349	$ 1,489,692

Farm Liabilities & Net Worth	Jan. 1	Dec. 31
Current		
Accounts payable	$ 16,693	$ 16,194
Operating debt	36,124	51,223
Short term	5,653	5,812
Advanced gov't. receipt	229	60
Current portion:		
Intermediate	38,476	45,200
Long term	15,237	19,760
Total Current	$ 112,413	$ 138,249
Intermediate		
Structured debt		
1-10 years	$ 202,993	$ 223,980
Financial lease (cattle & machinery)	20,289	16,548
Farm Credit stock	5,417	5,637
Total Intermediate	$ 228,699	$ 246,165
Long Term		
Structured debt		
≥ 10 years	$ 235,766	$ 237,595
Financial lease (structures)	2,837	2,057
Total Long Term	$ 238,603	$ 239,652
Total Farm Liabilities	$ 579,715	$ 624,066
FARM NET WORTH	$ 783,634	$ 865,626

Nonfarm Assets*	Jan.1	Dec. 31
Personal cash, checking & savings	$ 3,894	$ 3,717
Cash value life insurance	12,313	12,860
Nonfarm real estate	28,277	28,887
Auto (personal share)	4,547	4,934
Stocks & bonds	15,754	20,971
Household furnishings	8,915	9,271
All other	8,091	8,906
Total Nonfarm	$ 81,791	$ 89,546

Nonfarm Liabilities* & Net Worth	Jan. 1	Dec. 31
Nonfarm Liabilities	$ 5,925	$ 5,767
NONFARM NET WORTH	$ 75,866	$ 83,779

FARM & NONFARM**	Jan. 1	Dec. 31
Total Assets	$ 1,445,140	$ 1,579,238
Total Liabilities	585,640	629,833
TOTAL FARM & NON-FARM NET WORTH	$ 859,500	$ 949,405

*Average of 164 farms completing the nonfarm balance sheet.
**Sum of average farm values for 314 farms and nonfarm values for 164 farms.

Financial lease obligations are included in the balance sheet. The present values of all future payments are listed as liabilities since the farmer (lessee) is committed to make the payments. The present values are also listed as assets, representing the future value the item has to the business.

The farm balance sheet analysis includes financial and debt ratios and factors measuring levels of debt. Percent equity is calculated by dividing farm net worth by farm assets. Equity increases as the value of assets increase more than liabilities. The debt to asset ratios reflect strength in solvency and the potential capacity to borrow. The debt analysis ratios show how well the debt is structured and managed. Debt levels per unit of production include some old standards that are still useful if used with measures of cash flow and repayment ability.

Table 11.

FARM BALANCE SHEET ANALYSIS
314 New York Dairy Farms, 1999

Item	Average 314 Farms		Average Top 10% Farms*	
Farm Financial Ratios:				
Percent equity	58%		53%	
Debt/asset ratio: total	0.42		0.47	
long term	0.40		0.47	
intermediate & current	0.43		0.46	
Leverage Ratio:	0.72		0.87	
Current Ratio:	1.68		1.67	
Working Capital: $93,841 as % of Total Expenses	14%	$272,125	14%	
Farm Debt Analysis:				
Accounts payable as % of total debt	3%		2%	
Long term liab. as % of total debt	38%		36%	
Current & intermediate liabilities as % of total debt	62%		64%	
Cost of term debt (weighted average)	7.4%		7.5%	
Farm Debt Levels:	Per Cow	Per Tillable Acre Owned	Per Cow	Per Tillable Acre Owned
Total farm debt	$2,702	$2,213	$2,605	$2,848
Long term debt	1,037	850	926	1,012
Intermediate & long term	2,103	1,723	1,949	2,131
Intermediate & current debt	1,664	1,363	1,679	1,836

*Average of 31 farms with highest rates of return to all capital (without appreciation).

The farm inventory balance accounts for the changes in the values of major farm assets from the beginning to the end of the year.

Table 12.

FARM INVENTORY BALANCE
314 New York Dairy Farms, 1999

Item	Real Estate		Machinery & Equipment		Livestock
Value beginning of year		$ 550,080		$ 230,327	$ 324,811
Purchases	$ 74,286*		$ 59,116		
+ nonfarm noncash transfer**	1,041		435		
- Lost capital	21,970				
- Net sales	1,984		1,796		
- Depreciation	22,913		31,585		
= Net Investment		28,459		26,171	17,426
+ Appreciation		14,428		4,996	8,515
Value end of year		$ 592,967		$ 261,494	$ 350,752

*$11,638 land and $62,648 buildings and/or depreciable improvements.
**Gifts and inheritances of property transferred into the farm business from outside.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are consistent (in accountants' terms they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows the farmer to determine to what degree the changes in equity was caused by (1) earning from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Retained earnings are an excellent indicator of farm generated financial progress.

Table 13.

STATEMENT OF OWNER EQUITY (RECONCILIATION)
314 New York Dairy Farms, 1999

Item	Average 314 Farms		Average Top 10% Farms**	
Beginning of year farm net worth		$ 783,634		$ 1,503,835
Net farm income without appreciation	$ 122,210		$478,018	
+ Nonfarm cash income	8,127		7,778	
- Personal withdrawals & family expenditures excluding nonfarm borrowings	59,885		134,457	
RETAINED EARNINGS		+ $ 70,452		+ $ 351,339
Nonfarm noncash transfers to farm	$ 1,494		$ 6,452	
+ Cash used in business from nonfarm capital	3,620		8,454	
- Note or mortgage from farm real estate sold (nonfarm)	3		0	
CONTRIBUTED/WITHDRAWN CAPITAL		+ $ 5,111		+ $ 14,906
Appreciation	$ 28,965		$ 51,069	
- Lost capital	21,970		65,726	
CHANGE IN VALUATION EQUITY		+ $ 6,995		+ $ -14,657
IMBALANCE/ERROR		- $ 566		- $ 665
End of year farm net worth*		$ 865,626		$ 1,854,758
Change in Net Worth				
Without appreciation	$53,027		$299,854	
With appreciation	$81,992		$350,923	

*May not add due to rounding.
**Average of 31 farms with highest rates of return to all capital (without appreciation).

Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding and organizing the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities and from reserves. All cash inflows and outflows including beginning and end balances are included. Therefore the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

Table 14.

ANNUAL CASH FLOW STATEMENT
314 New York Dairy Farms, 1999

Item		Average 314 Farms	
Cash Flow from Operating Activities			
Cash farm receipts	$ 794,822		
- Cash farm expenses	645,943		
= Net cash farm income		$ 148,879	
Personal withdrawals & family expenses including nonfarm debt payments	$ 60,151		
- Nonfarm income	8,127		
- Net cash withdrawals from the farm		$ 52,024	
= Net Provided by Operating Activities			$ 96,855
Cash Flow From Investing Activities			
Sale of assets: machinery	$ 1,796		
+ real estate	1,981		
+ other stock & certificates	1,914		
= Total asset sales		$ 5,691	
Capital purchases: expansion livestock	$ 12,408		
+ machinery	59,116		
+ real estate	74,286		
+ other stock & certificates	5,164		
- Total invested in farm assets		$ 150,974	
+ Net Provided by Investment Activities			$-145,283
Cash Flow From Financing Activities			
Money borrowed (intermediate & long term)	$ 115,555		
+ Money borrowed (short term)	3,915		
+ Increase in operating debt	15,099		
+ Cash from nonfarm capital used in business	3,620		
+ Money borrowed - nonfarm	266		
= Cash inflow from financing		$ 138,455	
Principal payments (intermediate & long term)	$ 81,491		
+ Principal payments (short term)	3,756		
+ Decrease in operating debt	0		
- Cash outflow for financing		$ 85,247	
= Net Provided by Financing Activities			$ 53,208
Cash Flow From Reserves			
Beginning farm cash, checking & savings		$ 7,438	
- Ending farm cash, checking & savings		$ 11,648	
= Net Provided from Reserves			$ -4,210
Imbalance (error)			$ 570

Table 15.

ANNUAL CASH FLOW BUDGETING DATA
314 New York Dairy Farms, 1999

Item	Average 314 Farms Total	Per Cow	Per Cwt.	Average Top 10% Farms** Total	Per Cow	Per Cwt.
Average number of cows and cwt. milk		224	47,932		598	140,276
Accrual Operating Receipts						
Milk	$ 714,529	$3,190	$ 14.91	$ 2,097,843	$ 3,508	$ 14.96
Dairy cattle	43,956	196	0.92	147,253	246	1.05
Dairy calves	5,799	26	0.12	16,370	27	0.12
Other livestock	2,084	9	0.04	12,441	21	0.09
Crops	16,664	74	0.35	66,500	111	0.47
Miscellaneous receipts	30,037	134	0.63	42,776	72	0.30
Total	$ 813,071	$3,630	$ 16.96	$ 2,383,184	$ 3,985	$ 16.99
Accrual Operating Expenses						
Hired labor	$ 102,335	$457	$ 2.14	$ 331,511	$ 554	$ 2.36
Dairy grain & concentrate	179,144	800	3.74	526,518	880	3.75
Dairy roughage	10,692	48	0.22	40,376	68	0.29
Nondairy feed	93	0	0.00	0	0	0.00
Machinery hire, rent & lease	18,968	85	0.40	52,120	87	0.37
Machinery repairs & vehicle expense	37,198	166	0.78	82,636	138	0.59
Fuel, oil & grease	11,676	52	0.24	25,484	43	0.18
Replacement livestock	11,585	52	0.24	16,963	28	0.12
Breeding	8,019	36	0.17	22,679	38	0.16
Vet & medicine	22,580	101	0.47	67,966	114	0.48
Milk marketing	23,530	105	0.49	55,331	93	0.39
Bedding	9,229	41	0.19	32,994	55	0.24
Milking supplies	16,104	72	0.34	38,353	64	0.27
Cattle lease	2,529	11	0.05	13,462	23	0.10
Custom boarding	7,157	32	0.15	32,411	54	0.23
bST expense	11,644	52	0.24	37,221	62	0.27
Other livestock expense	7,522	34	0.16	12,385	21	0.09
Fertilizer & lime	16,599	74	0.35	40,221	67	0.29
Seeds & plants	9,754	44	0.20	20,313	34	0.14
Spray/other crop expense	11,456	51	0.24	22,497	38	0.16
Land, building & fence repair	13,012	58	0.27	29,561	49	0.21
Taxes	9,852	44	0.21	18,368	31	0.13
Real estate rent & lease	12,841	57	0.27	36,296	61	0.26
Insurance	7,675	34	0.16	13,384	22	0.10
Utilities	14,798	66	0.31	33,096	55	0.24
Miscellaneous	8,266	37	0.17	20,998	35	0.15
Total Less Interest Paid	$ 584,260	$2,608	$ 12.19	$ 1,623,143	$ 2,714	$ 11.57
Net Accrual Operating Income (without interest paid)	$ 228,811	$1,021	$ 4.77	$ 760,041	$ 1,271	$ 5.42
- Change in livestock & crop inventory	29,745	133	0.62	130,581	218	0.93
- Change in accounts receivable	-11,495	-51	-0.24	-25,220	-42	-0.18
- Change in feed & supply inventory	21,489	96	0.45	111,742	187	0.80
+ Change in accounts payable*	-353	-2	-0.01	-6,764	-11	-0.05
NET CASH FLOW	$ 188,798	$843	$ 3.94	$ 536,175	$ 897	$ 3.82
- Net personal withdrawals & family exp.	51,758	231	1.08	126,680	212	0.90
Available for Farm Debt Payments & Invest.	$ 137,040	$612	$ 2.86	$ 409,495	$ 685	$ 2.92
- Farm debt payments	124,352	555	2.59	281,877	471	2.01
Cash available for Farm Investments	$ 12,688	$57	$ 0.26	$ 127,618	$ 213	$ 0.91

*Exclude change in interest account payable.
**Average of 31 farms with highest rates of return to all capital (without appreciation).

Repayment Analysis

The second step in cash flow planning and management is to compare and evaluate debt payments planned and made last year, and estimate the payments required in the current year. It is helpful to compare and evaluate a farm's repayment position by using debt payments per unit of production and receipt/debt payment ratios. The data below are from farms that completed summaries for both 1998 and 1999.

Table 16.

FARM DEBT PAYMENTS PLANNED
New York Dairy Farms, 1999

	Same 248 Dairy Farms			Same 26 Top 10% Farms		
	1999 Payments		Planned	1999 Payments		Planned
Debt Payments	Planned	Made	2000	Planned	Made	2000
Long term	$ 37,342	$ 57,869	$ 42,837	$ 89,428	$ 146,074	$ 126,471
Intermediate term	62,840	75,050	71,079	124,460	139,084	161,978
Short term	2,907	3,827	2,614	7,105	4,496	3,110
Operating (net reduction)	6,034	0	8,879	28,583	0	26,923
Accts. payable (net reduction)	1,043	1,695	837	3,400	11,973	4,491
Total	$110,166	$138,441	$ 126,246	$ 252,976	$ 301,627	$ 322,973
Per cow	$ 463	$ 582		$ 410	$ 489	
Per cwt. 1999 milk	$ 2.14	$ 2.68		$ 1.73	$ 2.07	
% of 1999 milk receipts	14%	18%		12%	14%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments. The ratios show the number of times the amount available for debt service in 1999 covered debt payments planned for 1999 (as of December 31, 1998).

Table 17.

COVERAGE RATIOS
Same 248 New York Dairy Farms, 1998 & 1999

Item	Average	Item	Average
Cash Flow Coverage Ratio		Debt Coverage Ratio	
Cash farm receipts	$ 857,807	Net farm income (w/o apprec.)	$ 131,610
- Cash farm expenses	701,327	+ Depreciation	57,452
+ Interest paid (cash)	41,607	+ Interest paid (accrual)	41,523
- Net personal withdrawals from farm*	54,180	- Net personal withdrawals from farm*	54,180
(A) = Amount Available for Debt Service	$ 143,907	(A') = Repayment Capacity	$ 176,405
(B) = Debt Payments Planned for 1999 (as of December 31, 1998)	$ 110,166	(B) = Debt Payments Planned for 1999 (as of December 31, 1998)	$ 110,166
(A/ B)= Cash Flow Coverage Ratio for 1999	1.31	(A'/B)= Debt Coverage Ratio for 1999	1.60
Same 26 Top 10% Dairy Farms, 1998 & 1999			
(A) = Amount Available for Debt Service	$ 412,549	(A') = Repayment Capacity	$ 605,446
(B) = Debt Payments Planned for 1999	252,976	(B) = Debt Payments Planned for 1999	252,976
(A/ B)= Cash Flow Coverage Ratio for 1999	1.63	(A'/B)= Debt Coverage Ratio for 1999	2.39

*Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If excluded, the coverage ratios will be incorrect.

The debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 9.3 percent of the farms had a cash flow coverage ratio less than 1.0.

Table 18.

DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE
248 New York Dairy Farms, 1999

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & Nonfarm) <.5	.5 to .99	1 to 1.49	≥1.5
		percent of farms		
<40%	2.4	6.9	15.3	27.8
40 to 70%	4.0	14.9	11.7	10.1
70% & over	1.2	2.4	2.4	0.8

Cropping Program Analysis

The cropping program is an important part of the dairy farm business that sometimes is overlooked and neglected. A complete evaluation of available land resources, how they are being used, how well crops are produced and what it costs to produce them, is required to evaluate alternative cropping and feed purchase choices.

Table 19.

LAND RESOURCES AND CROP PRODUCTION
314 New York Dairy Farms, 1999

Item	Average 314 Farms			Average Top 10% Farms*		
Land	Owned	Rented	Total	Owned	Rented	Total
Tillable	282	234	516	569	495	1,064
Nontillable	42	14	56	43	4	47
Other nontillable	114	6	121	175	1	176
Total	438	254	693	787	500	1,287
Crop Yields	**Farms**	**Acres**	**Prod/Acre**	**Farms**	**Acres**	**Prod/Acre**
Hay crop	303	257	2.9 tn DM	27	540	3.8 tn DM
Corn silage	283	207	16.3 tn	27	534	17.6 tn
			5.5 tn DM			6.0 tn DM
Other forage	33	44	1.7 tn DM	1	27	0.8 tn DM
Total forage	305	452	4.0 tn DM	27	1,075	4.8 tn DM
Corn grain	113	94	105 bu	10	132	140 bu
Oats	27	26	55 bu	3	26	43 bu
Wheat	21	67	63 bu	0	0	0 bu
Other crops	62	86		6	372	
Tillable pasture	76	55		4	42	
Idle	45	43		5	26	

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Crop acres and yields compiled for the average represent only the number of farms reporting each crop. All but 11 of the 314 farms produced hay or hay crop silage in 1999. Ninety percent produced corn silage, 36 percent grew and harvested corn grain, and 9 percent grew oats for grain. Although 76 farms used tillable pasture in 1999, only 53 farms reported using rotational grazing.

Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent.

Crop acres represent planted acres, therefore, any unharvested acres are reflected in lower yields per acre.

The following measures of crop management indicate how efficiently the land resource is being used and how well total forage requirements are being met.

Table 20.

CROP MANAGEMENT FACTORS
314 New York Dairy Farms, 1999

Item	Average 314 Farms	Average Top 10% Farms*
Total tillable acres per cow	2.30	1.78
Total forage acres per cow	1.96	1.57
Harvested forage dry matter, tons per cow	7.85	7.58

*Average of 31 farms with highest rates of return to all capital (without appreciation).

In the seventh year of collecting information on pasture costs, 13 cooperators provided pasture-related expenses. Fifty-six cooperators allocated direct crop related expenses to hay crop, corn and other crop production. The data in Table 21 have been compiled to show the average crop related production expenses per acre and per unit for these crops and for pasture. Note that labor and machinery costs have not been included. Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop. In Table 21, the total per tillable acre represents all 314 farms, the expenses for hay are for 55 farms and corn crops are for the 56 farms. The pasture costs are for the 13 farms which submitted data.

Table 21.

CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms, 1999

		Farms Reporting Crop Costs						
	Average 314 Farms	Average 55 Farms		Average 56 Farms			Average 13 Farms	
							Pasture	
	Total per Tillable	Hay Crop		All Corn	Corn Silage	Corn Grain	Per Till.	Per Total
Espenses	Acre	Per Acre	Per Ton DM	Per Acre	Per Ton DM	Per Dry Shell Bu.	Acre	Acre
Fertilizer & lime	$32.17	$22.61	$7.43	$38.73	$6.73	$0.38	$38.57	$9.76
Seeds & plants	18.90	11.67	3.83	32.42	5.63	0.32	17.76	4.49
Spray & other crop exp.	22.20	8.18	2.69	50.87	8.84	0.50	1.00	0.25
Total	$73.27	$42.46	$13.75	$122.02	$21.20	$1.20	$57.33	$14.50
Ave. Top 10% Farms:*	Average 31 Farms	Average 5 Farms Reporting Crop Costs						
Fertilizer & lime	$37.80	$18.37	$4.71	$36.16	$5.08	$0.29		
Seeds & plants	19.09	10.34	2.65	33.67	4.73	0.27		
Spray & other crop exp.	21.14	14.41	3.70	64.64	9.08	0.52		
Total	$78.03	$43.12	$11.06	$134.47	$18.89	$1.08		

*Average of farms with highest rates of return to all capital (without appreciation).

Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre.

Table 22.

ACCRUAL MACHINERY EXPENSES
314 New York Dairy Farms, 1999

	Average 314 Farms		Average Top 10% Farms*	
Machinery Expense Item	Total Expenses	Per Til. Acre	Total Expenses	Per Til. Acre
Fuel, oil & grease	$11,676	$22.63	$25,484	$23.95
Machinery repairs & vehicle expense	37,198	72.09	82,636	77.67
Machine hire, rent & lease	18,968	36.76	52,120	48.98
Interest (5%)	13,023	25.24	28,166	26.47
Depreciation	31,585	61.21	76,971	72.34
Total	$112,450	$217.93	$265,377	$249.41

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Table 23.

CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE
55 New York Dairy Farms, 1999

Item	Tons of Hay Crop Dry Matter Per Acre				
	<2.0	2.0-2.4	2.5-2.9	3.0-3.4	≥3.5
Hay crop, tons DM/acre	1.5	2.2	2.8	3.3	4.5
Farms reporting crop expense breakdowns	12	10	13	9	11
Average number hay crop acres for farms reporting	215	197	258	217	284
Accrual Crop Expenses Per Acre of Hay Crop:					
Fertilizer & lime	$ 25.07	$ 19.23	$ 21.02	$ 24.85	$ 22.99
Seeds & plants	15.37	7.22	11.57	11.40	11.68
Spray & other crop expenses	9.95	7.19	6.34	5.35	11.07
Total	$ 50.39	$ 33.64	$ 38.93	$ 41.60	$ 45.74
Accrual Crop Expense Per Ton DM of Hay Crop:					
Fertilizer & lime	$ 16.95	$ 7.59	$ 7.87	$ 5.62	$ 4.46
Seeds & plants	10.39	2.85	4.33	2.58	2.27
Spray & other crop expenses	6.73	2.84	2.37	1.21	2.15
Total	$ 34.07	$ 13.28	$ 14.57	$ 9.41	$ 8.88

Table 24.

CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE
56 New York Dairy Farms, 1999

Item	Tons Corn Silage/Acre			Dry Shell Bushels of Corn Grain Per Acre		
	<13	13-18	≥18	<88	88-113	≥113
Corn yield per acre	10.3	15.5	20.3	65	98	141
Farms reporting crop expense breakdowns	16	20	19	6	16	8
Average number corn acres for farms reporting	147	197	239	238	222	199
Accrual Crop Expense/Acre of Corn						
Fertilizer & lime	$ 34.40	$ 44.86	$ 35.90	$ 54.24	$ 42.60	$ 39.93
Seeds & plants	29.48	35.38	30.98	31.29	29.36	33.85
Spray & other crop expenses	44.76	53.80	52.02	41.68	50.24	65.93
Total	$ 108.64	$ 134.04	$ 118.90	$ 127.21	$ 122.20	$ 139.71
Accrual Crop Expense Per:*	Ton DM of Corn Silage			Dry Shell Bushel of Corn Grain		
Fertilizer & lime	$ 10.23	$ 8.57	$ 4.92	$ 0.75	$ 0.43	$ 0.29
Seeds & plants	8.77	6.76	4.24	0.43	0.30	0.24
Spray & other crop expense	13.31	10.28	7.12	0.58	0.51	0.47
Total	$ 32.31	$ 25.61	$ 16.28	$ 1.76	$ 1.24	$ 1.00

*Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop.

From the above two tables, it is important to observe that as forage yields per acre increase, crop related expenses per acre generally also increase. For corn silage and corn grain, crop expense per ton of dry matter and per bushel are highest at the low levels of production. Hay crop expenses per ton of dry matter decrease substantially as yields exceed 3.0 tons per acre. The lower dry matter costs on the farms with greater than 3.0 tons per acre can be attributed to significantly higher yields with controlled expenses per acre.

Dairy Program Analysis

An analysis of the dairy enterprise can be the most important step in evaluating the strengths and weaknesses of the dairy farm business. Changes in dairy herd size and market values are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. This increase in inventory is included as an accrual farm receipt when calculating profitability.

Table 25.

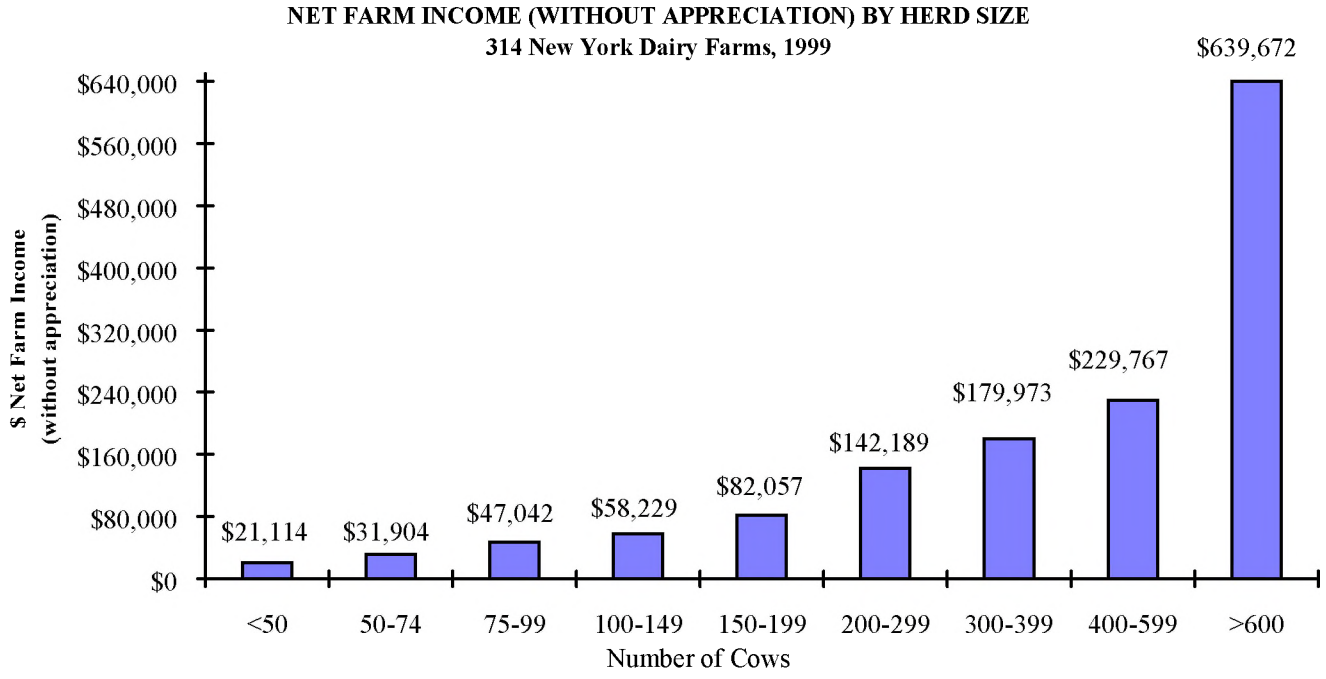
DAIRY HERD INVENTORY
314 New York Dairy Farms, 1999

	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	215	$ 224,709	58	$ 53,322	57	$ 31,698	44	$ 13,101
+ Change w/o apprec.		10,742		4,496		1,151		994
+ Appreciation		4,896		1,572		1,383		628
End year (owned)	225	$ 240,347	62	$ 59,390	57	$ 34,232	47	$ 14,723
End including leased	231							
Average number	224		164	(all age groups)				
Average Top 10% Farms:*								
Beg. year (owned)	547	$ 550,419	161	$ 140,929	152	$ 77,721	96	$ 25,858
+ Change w/o apprec.		48,109		15,272		2,824		8,603
+ Appreciation		2,371		945		2,642		400
End year (owned)	592	$ 600,899	176	$ 157,146	148	$ 83,187	124	$ 34,861
End including leased	622							
Average number	598		432	(all age groups)				

*Average of 31 farms with highest rates of return to all capital (without appreciation).

There is a strong relationship between farm size and farm income on well managed dairy farms. When data are sorted by herd size categories this relationship becomes apparent as shown in Chart 5. Net farm income increased $618,558 while labor and management income per operator jumped $199,048 as herd size increased from less than 50 to over 600 cows per farm. For more information on herd size comparisons, see pages 46-55.

Chart 5.



Total milk sold and milk sold per cow are extremely valuable measures of productivity on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year.

Table 26.

MILK PRODUCTION
314 New York Dairy Farms, 1999

Item	Average 314 Farms	Average Top 10% Farms*
Total milk sold, lbs.	4,793,159	14,027,628
Milk sold per cow, lbs.	21,439	23,463
Average milk plant test, percent butterfat	3.68%	3.62%

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Farms with higher rates of production tend to have higher profits. In 1999, most of the farms that sold more than 21,000 pounds of milk per cow had above average profit margins.

Table 27.

MILK SOLD PER COW AND FARM INCOME MEASURES
314 New York Dairy Farms, 1999

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Income/Oper.
Under 16,000	49	92	$27,916	$303	$958
16,000 to 16,999	24	92	22,065	240	-640
17,000 to 17,999	30	115	52,730	459	14,234
18,000 to 18,999	30	124	44,162	356	8,324
19,000 to 19,999	31	157	75,562	481	29,258
20,000 to 20,999	23	247	112,286	455	43,240
21,000 to 21,999	35	263	125,387	477	35,639
22,000 to 22,999	35	316	190,362	602	69,822
23,000 & over	57	448	308,670	689	116,697

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 27 above and is diagrammed in Charts 6 and 7 on page 26. Each spot on each scatter diagram represents one of the 314 farms.

Data in Chart 6 and Table 27 show that as milk sold per cow increased from 8,000 to 18,000 pounds, there was an increase in net farm income and the variation around the trend was relatively small at these production levels. As milk output exceeded 19,000 pounds per cow, average net farm income increased rapidly and the range in net farm income exceeded $600,000 at higher levels of milk output.

The relationship between milk output per cow and net farm income per cow is presented in Chart 7 and Table 27. Profitability measured as net farm income per cow rather than per farm partially removes the influence of herd size and also shows a positive relationship with milk sold per cow. Most of the farms that achieved $1,000 or more of net farm income per cow sold between 20,000 and 30,000 pounds of milk per cow; however, many farms also achieved high levels of profit with lower milk output per cow.

The trend lines on charts on the following pages were completed using regression techniques. The predictive formulas and R^2 are presented for each relationship. An R^2 of 1.00 indicates a perfect relationship between the data and the trend line. An R^2 of .30 for example, is interpreted as the trend line explaining 30% of the variability in the relationship. The higher the R^2, the better the trend line fits the data.

Chart 6.

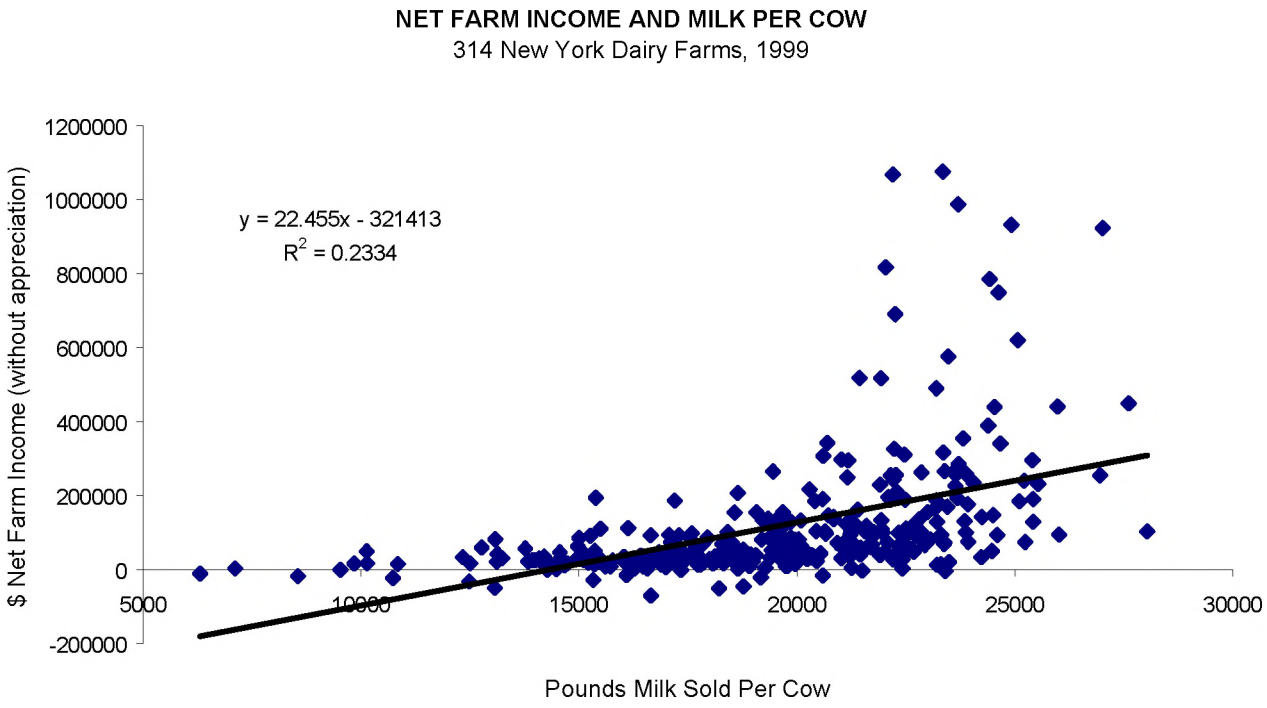
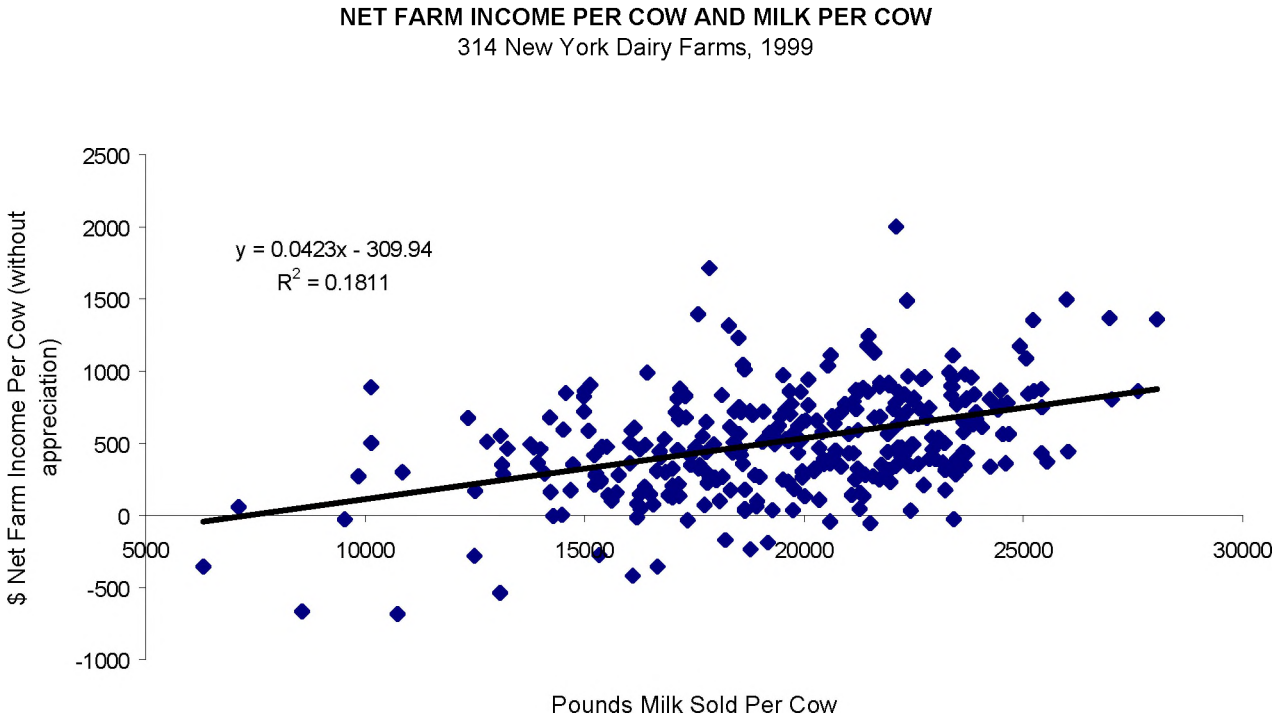


Chart 7.



Charts 8 and 9 look at relationships between cull rates and milk production and net farm income per cow. For the 1999 year, supplementary information concerning dairy replacements was collected from 88 participating farms. The business chart (Table 28.) reports the range of reported factors for the different information that was collected. Please refer to the glossary for definitions of the different terms and how the measures were calculated.

Chart 8.

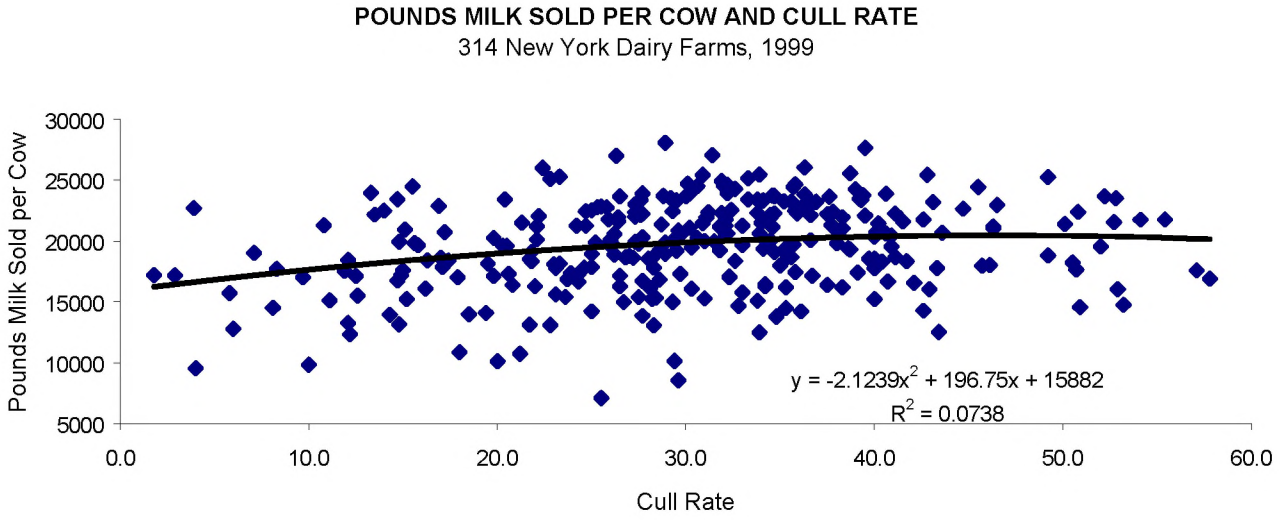


Chart 9.

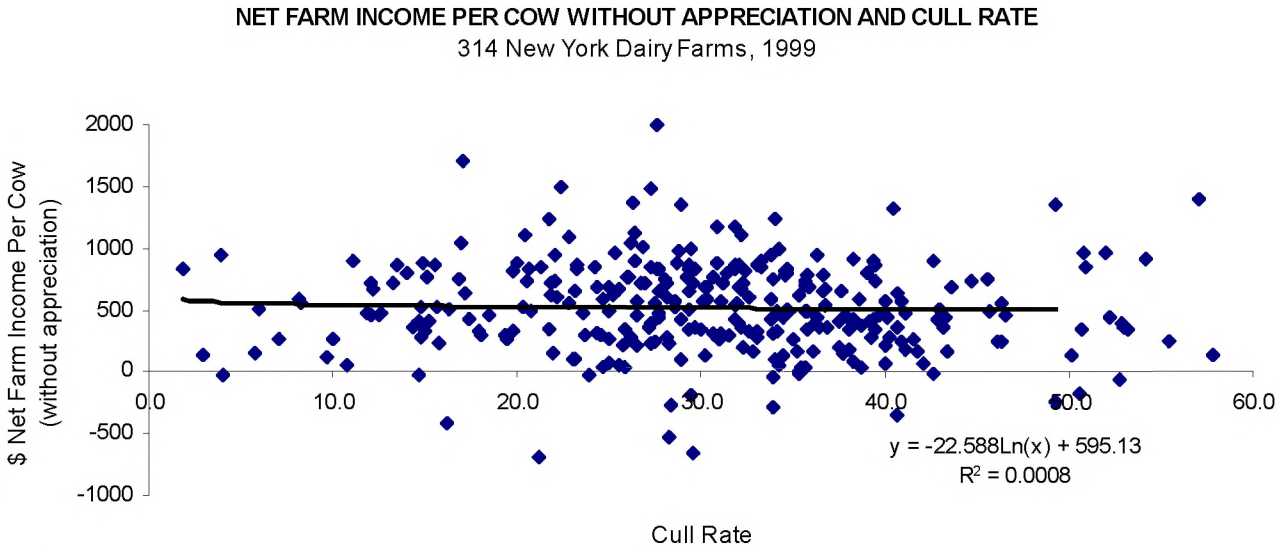


Table 28.

CULLING RATE AND DAIRY REPLACEMENT INFORMATION
New York Dairy Farms, 1999

Sell Rate	Death Rate	Cull Rate	Value of Cows Sold	Value of Animals Purchased	Percent of Replacements Purchased	Percent of Heifers Being Custom Raised
----------	----------304 Farms*----------			(115 Farms)	------- 88 Farms -------	
7%	0%	11%	$ 147	$516	0%	0%
14	1	19	253	920	0	0
20	2	24	312	1,063	0	0
23	3	27	347	1,149	0	0
25	3	29	381	1,208	0	0
27	4	32	408	1,247	3	0
30	5	34	436	1,317	13	1
32	6	37	474	1,440	23	19
36	8	40	550	1,758	50	46
44	12	49	939	6,121	91	93

*Average culling rate = 32.9%, sell rate = 28%, and death rate = 5%. Average number of cows sold for beef = 63, cows sold for dairy = 2, and cows died = 11.

Cost of Producing Milk

The cost of producing milk has been compiled below using the whole farm method. The following steps are used in the calculations.

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.

2. Accrual milk sales are deducted from total accrual receipts to get total accrual nonmilk receipts which are used to represent total nonmilk operating costs.

3. Total accrual nonmilk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating cost of producing milk.

4. Machinery depreciation and building depreciation are added to operating costs to determine the purchased inputs cost of producing milk.

5. The opportunity cost of equity capital, operator's labor and operator's management and the value of unpaid family labor are added to all other costs to obtain the total cost of producing milk. This cost includes all the operating, depreciation, and imputed cost of producing milk.

Table 29.

COST OF PRODUCING MILK, WHOLE FARM METHOD
314 New York Dairy Farms, 1999

Item	Average 314 Farms		Average Top 10% Farms	
Total Accrual Operating Expenses	$ 624,100		$ 1,721,548	
Expansion Livestock, Accrual	+ 12,263		+ 46,804	
1. Total Accrual Operating Expenses, Including Expansion Livestock		$ 636,363		$1,768,352
Total Accrual Receipts	$ 813,071		$ 2,383,184	
Milk Sales, Accrual	- 714,529		- 2,097,843	
2. Total Accrual Nonmilk Receipts		-$ 98,542		-$285,341
3. Operating Cost of Producing Milk		$ 537,821		$1,483,011
Machinery Depreciation		+$ 31,585		+ 76,971
Building Depreciation		+ 22,913		+ 59,843
4. Purchased Inputs Cost of Producing Milk		$ 592,319		$1,619,825
Family Labor Unpaid ($1,800/month)		+ 5,400		+ 3,420
Real Interest on Equity Capital		+ 41,232		+ 83,965
Value of Operator's Labor & Management		+ 47,099		+ 64,632
5. Total Costs of Producing Milk		$ 686,050		$1,771,842
6. Costs Per Cwt.:				
Cwt. Milk Sold	47,932		140,276	
Operating Cost Per Cwt.	$ 11.22		$ 10.57	
Purchased Inputs Cost Per Cwt.	$ 12.36		$ 11.55	
Total Cost Per Cwt.	$ 14.31		$ 12.63	

Costs of producing milk per hundredweight are presented for eight expenditure categories in Table 30. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A $12,168 average increase in crop inventories per farm, ($.25 per cwt. of milk), is included in crop sales.

Table 30.

ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
314 New York Dairy Farms, 1999

Item	Average 314 Farms		Average Top 10% Farms**	
Dairy grain and concentrate	$3.74		$3.75	
Dairy roughage	0.22		0.29	
Nondairy feed	0.00		0.00	
Total feed expense		$3.96		$4.04
Crop expense		0.79		0.59
- Crop sales and government receipts*		0.74		0.67
Net Feed and Crop Expense		$4.01		$3.96
Hired labor		2.14		2.36
Operator's and family labor		1.10		0.49
Total Labor Expense		$3.24		$2.85
Machine repairs, fuel and hire		1.42		1.14
Machinery depreciation		0.66		0.55
- Gas tax refunds and custom work		0.04		0.01
Net Machinery Expense		$2.04		$1.68
Replacement and expansion cattle purchases		0.50		0.45
- Sales and inventory growth		1.08		1.26
Net Cattle Purchases		$-0.58		$-0.81
Milk marketing costs		0.49		0.39
All other livestock expense excluding purchases		1.77		1.84
Net Livestock Expense		$2.26		$2.23
Real estate repairs, rent and taxes		0.75		0.60
Building depreciation		0.48		0.43
Total Real Estate Expense		$1.23		$1.03
Interest paid		0.83		0.70
Interest on equity		0.86		0.60
Total Interest Expense		$1.69		$1.30
Other operating and miscellaneous expenses		0.64		0.49
- Miscellaneous income		0.20		0.10
Net Miscellaneous Expenses		$ 0.44		$0.39
Total Cost of Producing Milk		$14.31		$12.63
Purchased Inputs Cost		$12.36		$11.55
Total Operating Cost		$11.22		$10.57

*Non-crop related government payments may bias the results.
**Average of 31 farms with highest rates of return to all capital (without appreciation).

Costs of producing milk per hundredweight are presented in the table below for 248 farms that participated both in 1998 and 1999. Costs of production increased in all expense categories except feed and miscellaneous expenses when 1999 data are compared to 1998.

Table 31.

ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT
BASED ON WHOLE FARM DATA
Same 248 New York Dairy Farms, 1998-1999

Item	1998		1999		Percent Change
Dairy grain and concentrate	$4.02		$3.72		-7.5%
Dairy roughage	0.21		0.22		4.8
Nondairy feed	0.00		0.00		
Total feed expense		$4.23		$3.94	-6.9
Crop expense		0.79		0.78	
- Crop sales and government receipts*		0.55		0.75	
Net Feed and Crop Expense		$4.47		$3.97	-11.2%
Hired labor		2.11		2.21	
Operator's and family labor		1.03		0.99	
Total Labor Expense		$3.14		$3.20	1.9%
Machine repairs, fuel and hire		1.34		1.41	
Machinery depreciation		0.59		0.64	
- Gas tax refunds and custom work		0.04		0.03	
Net Machinery Expense		$1.89		$2.02	6.9%
Replacement and expansion cattle purchases		0.45		0.47	
- Sales and inventory growth		1.04		1.05	
Net Cattle Purchases		$-0.59		$-0.58	1.7%
Milk marketing costs		0.53		0.51	
All other livestock expense excluding purchases		1.72		1.80	
Net Livestock Expense		$2.25		$2.31	2.7%
Real estate repairs, rent and taxes		0.72		0.74	
Building depreciation		0.48		0.47	
Total Real Estate Expense		$1.20		$1.21	0.8%
Interest paid		0.92		0.80	
Interest on equity		0.82		0.86	
Total Interest Expense		$1.74		$1.66	-4.6%
Other operating and miscellaneous expenses		0.61		0.62	
- Miscellaneous income		0.19		0.18	
Net Miscellaneous Expenses		$ 0.42		$0.44	4.8%
Total Cost of Producing Milk		$14.51		$14.26	-1.7%
Purchased Inputs Cost		$12.67		$12.40	-2.1%
Total Operating Cost		$11.60		$11.29	-2.7%
Average Price Received for Milk		$15.59		$14.95	-4.1%

*Non-crop related government payments may bias the results.

The three measures of the accrual cost of producing milk per cow and per hundredweight are compared with accrual receipts from milk sales in Table 32.

Table 32.

COST OF PRODUCING MILK, ACCRUAL RECEIPTS FROM DAIRY, AND PROFITABILITY
314 New York Dairy Farms, 1999

Item	Average 314 Farms			Average Top 10% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
Accrual Cost of Producing Milk						
Operating Cost	$537,821	$2,401	$11.22	$1,483,011	2,480	$10.57
Purchased Inputs Cost	592,319	2,644	12.36	1,619,825	2,709	11.55
Total Cost	686,050	3,063	14.31	1,771,842	2,963	12.63
Accrual Receipts from Milk	$714,529	$3,190	$14.91	$2,097,843	$3,508	$14.96
Net Milk Receipts	690,999	3,085	14.42	2,042,512	3,416	14.56
Profitability						
Net Farm Income without Appreciation	$122,210	$546	$2.55	$478,018	$799	$3.41
Net Farm Income with Appreciation	$151,175	$675	$3.15	$529,087	$885	$3.77

The operating cost of producing milk on all 314 dairy farms averaged $11.22 per hundredweight, leaving $3.69 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 314 dairy farms averaged $14.31per hundredweight, $0.60 less than the average price received for milk sold from these farms during 1999. The imputed costs or charge for the operator's labor, management and equity capital average $1.84 per hundredweight in 1999. The computed returns averaged $2.44 per hundredweight. The 31 most profitable farms held their operating costs to $10.57 per hundredweight and their total cost of producing milk averaged $12.63 per hundredweight. This left a profit of $2.33 per hundredweight of milk sold.

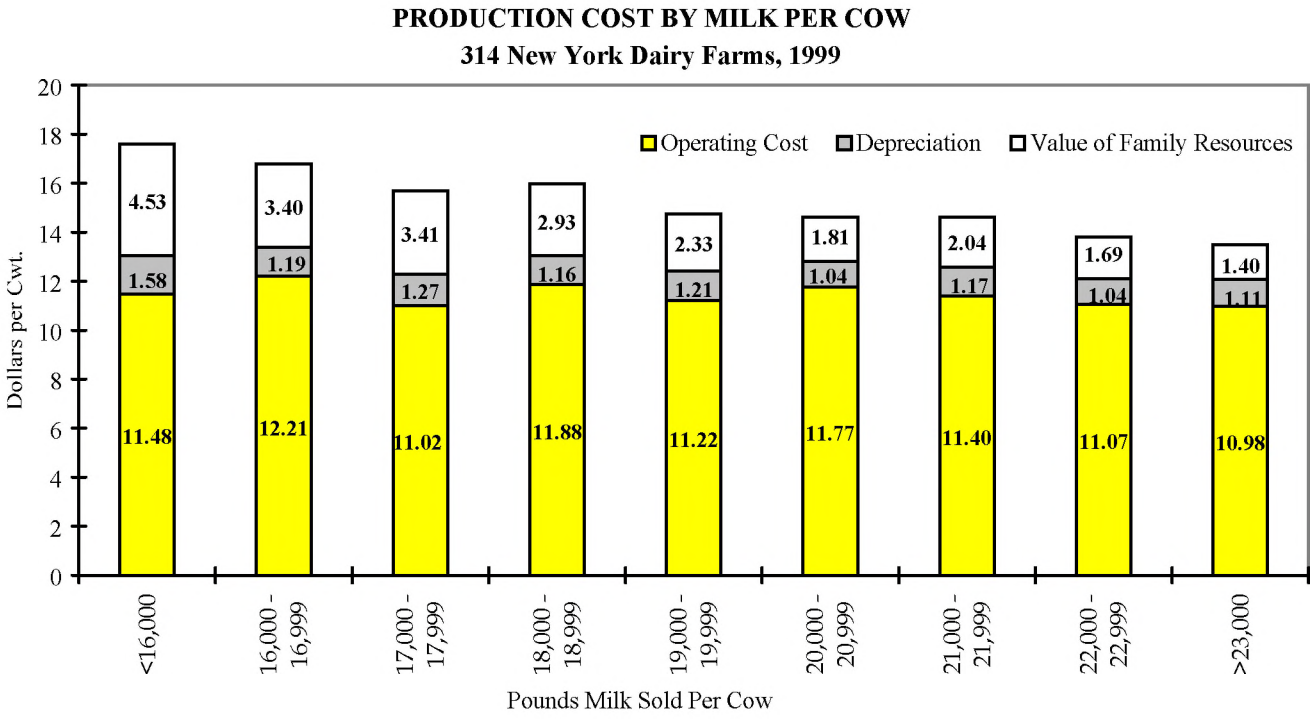
The strong relationship between milk output per cow and the cost of producing milk are shown in Table 33 and Chart 10 on page 32. Farms selling less than 18,000 pounds of milk per cow had average total costs of production of $16.70 per hundredweight while those selling 18,000 pounds and over averaged $14.54 for a difference of $2.16 per hundredweight.

Table 33.

FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
314 New York Dairy Farms, 1999

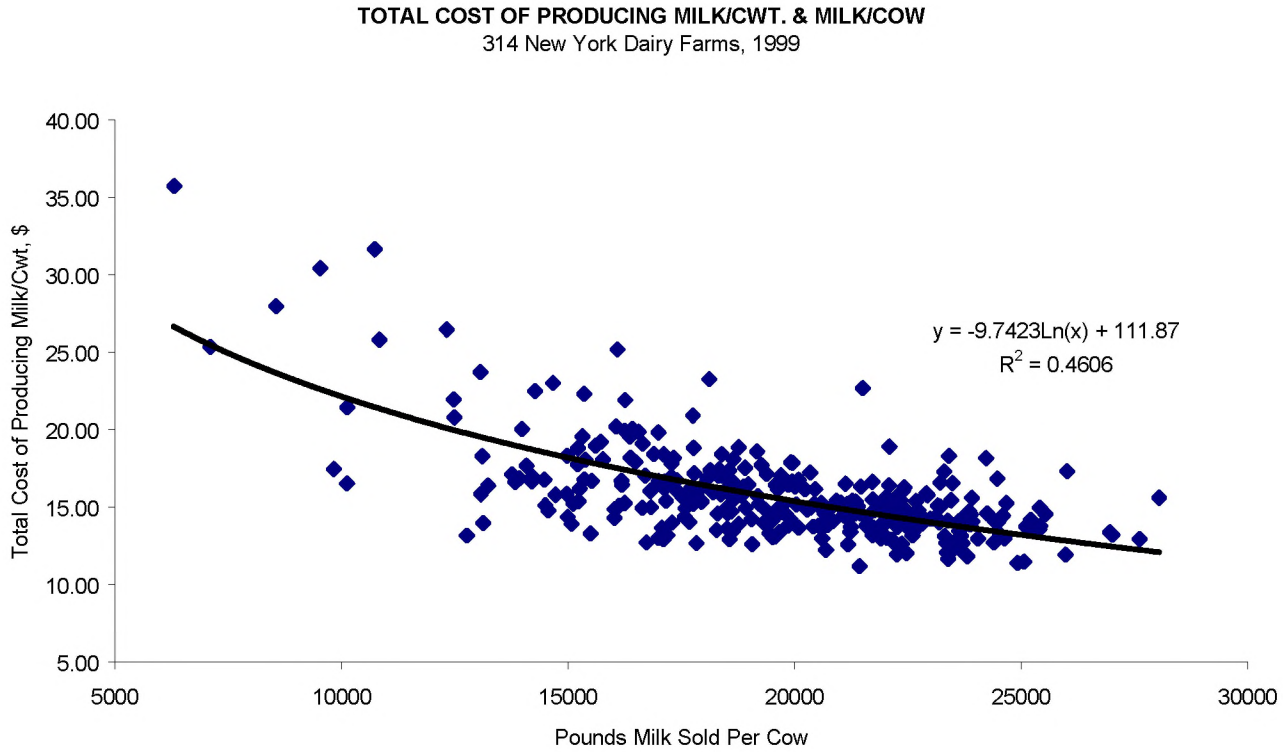
Pounds Milk Sold Per Cow	Cost per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs			Purchased Inputs	Total		
	Hired Labor	Dairy Grain & Conc.	Total Operating				
Under 16,000	$1.35	$3.97	$ 11.48	$ 13.06	$17.59	$15.20	$ 1.60
16,000-16,999	1.09	4.22	12.21	13.40	16.80	14.86	1.04
17,000-17,999	1.21	3.88	11.02	12.29	15.70	14.92	2.29
18,000-18,999	1.64	3.92	11.88	13.04	15.97	14.96	1.72
19,000-19,999	1.79	3.93	11.22	12.43	14.76	14.89	2.27
20,000-20,999	2.08	3.60	11.77	12.81	14.62	15.03	2.15
21,000-21,999	2.14	3.75	11.40	12.57	14.61	14.79	2.13
22,000-22,999	2.20	3.76	11.07	12.11	13.80	14.81	2.61
23,000 & over	2.46	3.64	10.98	12.09	13.49	14.93	2.81

Chart 10.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 11. It shows that as milk sold per cow increases on the average, total cost of production decreases, at a fairly constant rate.

Chart 11.



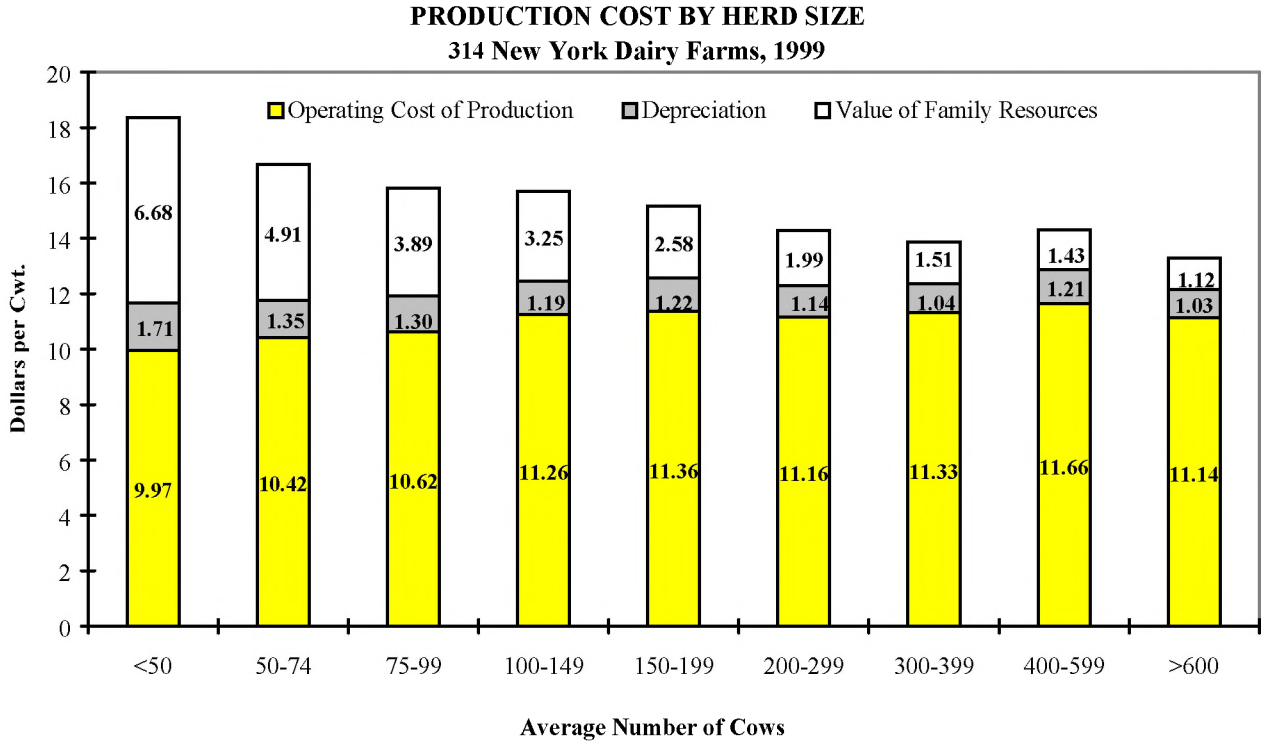
Data in Table 34 and Chart 12 show that the total cost of production generally declines as herd size increases because the cost of operator's resources are spread over more units of production.

Table 34.

FARM COST OF PRODUCING MILK BY HERD SIZE
314 New York Dairy Farms, 1999

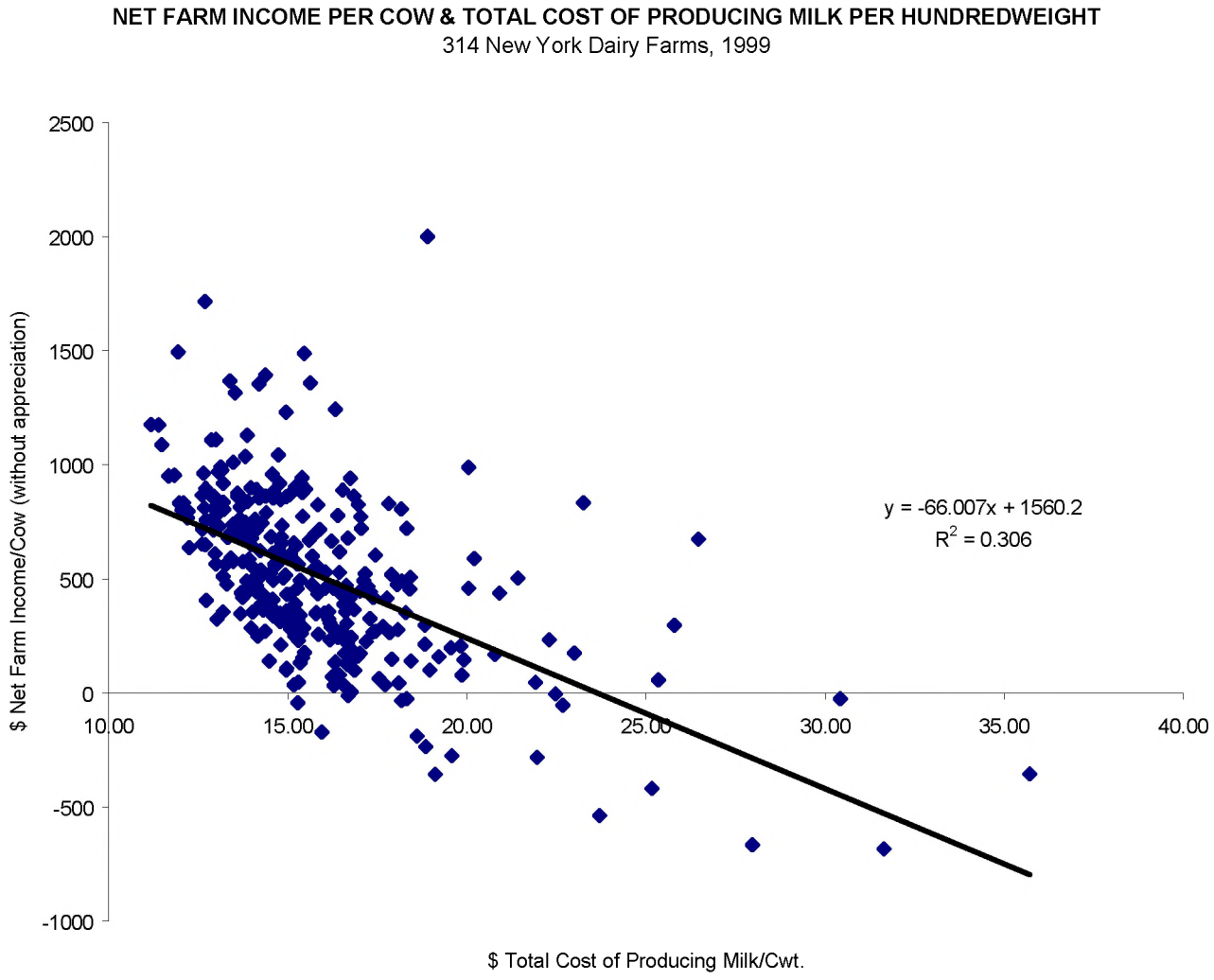
	Cost per Hundredweight						
	Operating Costs						
Number of Cows	Hired Labor	Dairy Grain & Conc.	Total Operating	Purchased Inputs	Total	Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
Under 50	$0.50	$3.47	$9.97	$11.68	$18.36	$14.85	$2.28
50 to 74	0.94	3.53	10.42	11.77	16.68	14.71	2.34
75 to 99	1.06	3.60	10.62	11.92	15.81	14.81	2.47
100 to 149	1.27	3.70	11.26	12.45	15.70	14.88	2.13
150 to 199	1.98	3.61	11.36	12.58	15.16	14.91	2.27
200 to 299	1.88	3.73	11.16	12.30	14.29	15.05	2.65
300 to 399	2.26	3.60	11.33	12.37	13.88	14.70	2.30
400 to 599	2.40	3.79	11.66	12.87	14.30	14.98	2.07
600 and over	2.65	3.85	11.14	12.17	13.29	14.92	2.74

Chart 12.



The importance of cost control and its impact on farm profitability are illustrated in Chart 13. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. All farms had a positive net farm income per cow until the total cost of producing milk exceeded $15 per hundredweight. The majority of the farms with costs greater than $22 per hundredweight experienced negative net farm incomes per cow.

Chart 13.



Cost of Producing Milk (continued)

A 10-year comparison of the average costs and returns of producing milk per hundredweight are presented in Table 35 on page 36. Average individual operating and overhead expenses per hundredweight of milk sold are reported on all specialized dairy farms included in the New York State Summary from 1990 through 1999. In 1999 the average operating cost of producing milk decreased 5 percent after decreasing 2 percent from 1997 to 1998. The average return per hundredweight to operator labor, management, and capital fell to $2.70 in 1999, 7 percent below 1998.

Hired labor expense per hundredweight has increased consistently from 1990 to 1999. Hired labor expense was $1.77 in 1990 and has risen to $2.14 in 1999. Thus, even as pounds of milk sold per worker have increased from 563,349 in 1990 to 839,432 in 1999; labor expense per worker has increased even more rapidly. Some of this effect is due to increasing farm size where a larger portion of the labor force is comprised of hired workers. Purchased feed expense per hundredweight of milk has been remarkably stable. At $4.28 in 1990, it decreased to a low of $3.71 in 1995, before reaching its high a year later at $4.73. In 1999, purchased feed expense was $0.32 lower than in 1990.

Interest paid on debt per hundredweight of milk sold has decreased over this period. In 1990, interest expense was $1.05 per cwt. While it reached a low of $0.80 in 1993, interest expense was at $0.83 in 1999. Property taxes per hundredweight of milk have decreased by over 40 percent during this ten-year period. Property taxes were $0.37 per hundredweight in 1990, but were only $0.21 in 1999. This is due to productivity increases and more of the land resources being rented, rather than owned.

A 10-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 36 on page 37. Average cow numbers are up 109 percent, tillable acres have increased 59 percent, and milk sold per farm has jumped 152 percent since 1990. Capital investment per cow has decreased 3 percent, far less than inflation, over the last 10 years. Labor and management income per operator decreased 23 percent in 1999 compared to 1998 and farm net worth continued to grow.

After being stable for many years, crop yields increased over the past ten years. Hay crop yields, tons of dry matter per acre increased from 2.7 to 2.9 tons per acre. Corn silage yields, as fed, increased from 14.4 to 16.3 tons per acre. As yields increased, fertilizer and lime expense increased only $3.00 per tillable acre, from $29 to $32 per acre. Pounds of milk sold per cow increased by 21 percent, from 17,720 pounds in 1990 to 21,439 pounds in 1999.

Average number of workers per farm increased by two and operators/managers per farm increased by less than 0.4 . Cows per worker equivalent increased from 32 in 1990 to 39 in 1999, but labor cost per cow increased from $541 to $653 over the same time period.

The asset turnover ratio has improved in recent years. Total accrual receipts as a proportion of total farm assets (asset turnover ratio) has increased from 0.48 in 1990 to 0.59 in 1999. Percent equity has deteriorated. It was 66 percent in 1990, but was down to 58 percent in 1999 because there are more large (higher leveraged) farms in the sample..

Table 35.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT
New York Dairy Farms, 1990 to 1999

Item	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Operating Expenses										
Hired labor	$ 1.77	$ 1.74	$ 1.80	$ 1.86	$ 1.80	$1.78	$1.89	$1.97	$2.06	$2.14
Purchased feed	4.28	3.88	3.92	3.85	3.89	3.71	4.73	4.63	4.18	3.96
Machinery repair, vehicle expense & rent	1.11	.93	.97	.93	.92	.85	1.02	.94	1.12	1.18
Fuel, oil & grease	.41	.37	.35	.34	.31	.27	.31	.28	.25	.24
Replacement livestock	.20	.15	.21	.17	.21	.15	.19	.18	.24	.24
Breeding fees	.19	.18	.18	.19	.17	.15	.15	.15	.16	.17
Veterinary & medicine	.32	.33	.35	.37	.40	.39	.42	.41	.45	.47
Milk marketing	.53	.58	.63	.64	.67	.70	.59	.52	.53	.49
Other dairy expenses	.68	.65	.70	.72	.88	.92	.99	1.05	1.09	1.13
Lime & fertilizer	.50	.40	.37	.36	.33	.31	.32	.33	.35	.35
Seeds & plants	.22	.20	.21	.20	.19	.19	.20	.21	.22	.20
Spray & other crop expense	.22	.20	.21	.20	.20	.20	.21	.23	.24	.24
Land, building & fence repair	.32	.19	.24	.21	.21	.16	.23	.19	.27	.27
Taxes	.37	.38	.35	.34	.29	.27	.26	.23	.21	.21
Insurance	.24	.23	.22	.20	.18	.17	.18	.16	.17	.16
Utilities (farm share)	.39	.39	.38	.39	.38	.38	.39	.35	.32	.31
Interest paid	1.05	1.07	.88	.80	.81	.94	.91	.90	.89	.83
Misc. (including rent)	.47	.43	.44	.41	.40	.40	.41	.38	.41	.44
Total Operating Expenses	$13.27	$12.30	$12.41	$12.18	$12.24	$11.94	$13.40	$13.12	$13.15	$13.02
Less: Nonmilk cash receipts	1.75	1.73	1.67	1.65	1.30	1.15	1.07	1.14	1.18	1.44
Increase in grown feed & supplies	.26	.04	.23	.13	.25	.14	.15	.07	.25	.26
Increase in livestock	.15	.18	.08	.22	.21	.25	.18	.15	.22	.36
OPERATING COST OF MILK PRODUCTION	$11.11	$10.35	$10.43	$10.18	$10.47	$10.40	$12.00	$11.76	$11.50	$10.96
Overhead Expenses										
Depreciation: machinery & buildings	$1.35	$ 1.28	$ 1.19	$ 1.17	$ 1.13	$1.07	$1.04	$0.95	$1.08	$1.14
Unpaid labor	.19	.18	.16	.15	.12	.12	.13	.13	.11	.11
Operator(s) labor *	1.10	1.06	.99	1.00	.86	.92	.88	.79	.74	.80
Operator(s) management (5% of cash receipts)	.85	.73	.76	.74	.73	.70	.80	.73	.82	.83
Interest on farm equity capital (5%)	1.24	1.20	1.11	1.11	1.00	.94	.94	.87	.85	.86
Total Overhead Expenses	$ 4.73	$ 4.45	$ 4.21	$ 4.17	$ 3.84	$ 3.75	$3.79	$3.47	$3.60	3.74
TOTAL COST OF MILK PRODUCTION	$15.84	$14.80	$14.64	$14.35	$14.31	$14.15	$15.79	$15.23	$15.10	14.70
AVERAGE FARM PRICE OF MILK	$14.93	$12.95	$13.58	$13.14	$13.44	$13.03	$14.98	$13.65	$15.60	14.91
Return per cwt. to operator labor, capital & mgmt.	$ 2.28	$ 1.14	$ 1.80	$ 1.64	$ 1.72	$ 1.44	$ 1.81	$ 0.81	$2.91	$2.70
Rate of return on farm equity capital	1.3%	-2.7%	0.2%	-0.4%	0.6%	-1.0%	0.7%	-4.1%	8.0%	6.2%

*1990 = $1,250/month,1991 = $1,300/month, 1992 = $1,350/month, 1993 = $1,400/month, 1994 and 1995 = $1,450/month, 1996 = $1,500/month, 1997 = $1,550/month, 1998 = $1,600/month and 1999 = $1,800/month of operator labor.

Table 36.

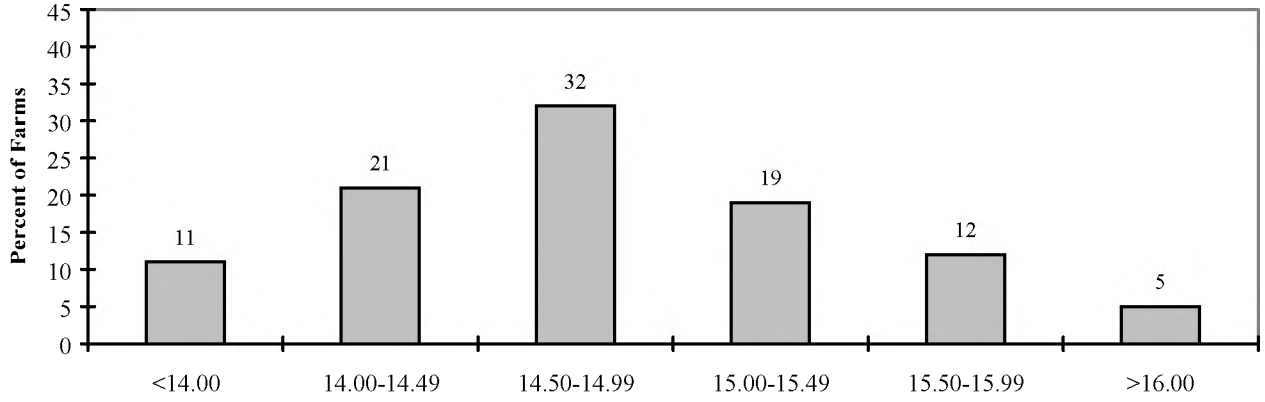
TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS
New York Dairy Farms, 1990 to 1999

Item	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Number of farms	395	407	357	343	321	321	300	253	305	314
Cropping Program										
Total tillable acres	325	330	346	351	392	399	415	462	497	516
Tillable acres rented	121	124	135	135	159	166	183	207	232	234
Hay crop acres	166	169	171	182	195	197	198	219	239	248
Corn silage acres	82	88	98	96	110	117	120	156	175	186
Hay crop, tons DM/acre	2.7	2.4	2.8	2.7	3.0	2.8	2.8	2.5	3.1	2.9
Corn silage, tons/acre	14.4	13.7	14.5	14.9	16.4	15.6	15.9	16.1	18.0	16.3
Fert. & lime exp./tillable acre	$29	$25	$25	$25	$25	$25	$26	$28	$31	$32
Machinery cost/cow	$483	$438	$444	$430	$438	$402	$450	$429	$471	$502
Dairy Analysis										
Number of cows	107	111	123	130	151	160	167	190	210	224
Number of heifers	87	92	96	100	116	121	124	139	155	164
Milk sold, cwt.	19,005	20,060	23,130	24,448	30,335	32,362	33,504	39,309	43,954	47,932
Milk sold/cow, lbs.	17,720	18,027	18,789	18,858	20,091	20,269	20,113	20,651	20,900	21,439
Purchased dairy feed/cwt. milk	$4.27	$3.87	$3.91	$3.85	$3.89	$3.70	$4.73	$4.63	$4.18	$3.96
Purc. grain & conc. as % of milk receipts	28%	29%	28%	29%	28%	27%	30%	33%	26%	25%
Purc. feed & crop exp/cwt. milk	$5.21	$4.67	$4.70	$4.61	$4.61	$4.39	$5.46	$5.39	$5.00	$4.75
Capital Efficiency										
Farm capital/cow	$6,556	$6,688	$6,587	$6,462	$6,398	$6,264	$6,218	$6,196	$6,161	$6,368
Real estate/cow	$2,977	$3,063	$3,015	$2,932	$2,859	$2,763	$2,701	$2,650	2,537	2,562
Mach. invest./cow	$1,233	$1,267	$1,203	$1,165	$1,150	$1,098	$1,107	$1,108	1,118	1,163
Asset turnover ratio	.48	.43	.47	.46	.50	.49	.55	.52	0.61	0.59
Labor Efficiency										
Worker equivalent	3.37	3.38	3.60	3.68	4.02	4.40	4.48	5.01	5.35	5.71
Operator/manager equivalent	1.39	1.37	1.41	1.45	1.49	1.56	1.56	1.60	1.62	1.76
Milk sold/worker, lbs.	563,349	593,297	641,893	664,868	755,178	736,269	747,861	784,604	821,565	839,432
Cows/worker	32	33	34	35	38	36	37	38	39	39
Labor cost/cow	$541	$538	$552	$568	$558	$570	$582	$598	$609	$653
Profitability & Financial Analysis										
Labor & mgmt. income/operator	$14,328	$-955	$11,254	$9,000	$14,789	$10,346	$18,651	$-1,424	$55,917	$42,942
Farm net worth, end year	$471,322	$480,131	$515,215	$542,126	$608,749	$624,261	$648,186	$685,665	$798,297	$865,626
Percent equity	66%	64%	64%	65%	63%	61%	61%	57%	59%	58%

The average or mean price per hundredweight of milk sold is calculated by dividing gross milk receipts by total pounds of milk sold. The average price for the 314 farms was $14.91 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean is shown below.

Chart 14.

VARIATION IN AVERAGE MILK PRICE
314 New York Dairy Farms, 1999



Fifty-one percent of the farms received from $14.50 to $15.49 per hundredweight of milk sold. Seventeen percent of the farms received $15.50 or more and 32 percent received less than $14.50 per hundredweight. Location and organization of markets are factors contributing to the difference in average milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and butterfat content are two variables that affect milk price. Butterfat content, which ranges from an average 3.6 percent to 3.9 percent as the milk price increases from less than $14.50 per cwt. to more than $16.00, explains a small portion of the difference in milk price on these farms.

The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables the comparison of different size dairy farms for strengths and areas for improvement.

Table 37.

DAIRY RELATED ACCRUAL EXPENSES
314 New York Dairy Farms, 1999

	Average 314 Farms		Average Top 10% Farms*	
Item	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	$800	$3.74	$880	$3.75
Purchased dairy roughage	48	.22	68	.29
Total Purchased Dairy Feed	$848	$3.96	$948	$4.04
Purchased grain & concentrate as % of milk receipts	25%		25%	
Purchased feed & crop expense	$1,016	$4.75	$1,087	$4.63
Purchased feed & crop expense as % of milk receipts	32%		31%	
Breeding	$36	$.17	$38	$.16
Veterinary & medicine	101	.47	114	.48
Milk marketing	105	.49	93	.39
Bedding	41	.19	55	.24
Milking Supplies	72	.34	64	.27
Cattle lease	11	.05	23	.10
Custom boarding	32	.15	54	.23
bST expense	52	.24	62	.27
Other livestock expense	34	.16	21	.09

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Feed costs per cow and per hundredweight of milk sold are influenced by a number of factors. These cost measures are affected by the amount of homegrown grains fed, quality and quantity of the roughage harvested, and the number of youngstock. Feed costs are also influenced by the farmer's ability to purchase grains and concentrates at reasonable prices and to balance nutrients fed with energy and protein requirements.

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, it actually represents the feed cost for one cow and 0.73 replacement being raised.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production. It does not represent total feed costs because machinery, labor and other costs are excluded.

Purchased grain and concentrates as percent of milk sales is calculated by dividing feed purchased by milk receipts. This is another useful measure of feed efficiency although variations in homegrown grains fed, heifers fed, and milk prices can have an impact. Purchased feed and crop expense as percent of milk sales removes much of the variation caused by the feeding of home grown grains.

Cost control has an important affect on farm profitability. The relationship between purchased feed and crop expense per hundredweight of milk and farm profitability is shown in the following table.

Table 38.

PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT OF MILK AND FARM INCOME MEASURES
314 New York Dairy Farms, 1999

Feed & Crop Exp. Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Apprec.	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
$6.00 or more	31	113	7.2	17,183	$32,959	$5,575	$49
5.50 to 5.99	30	175	6.5	19,126	$62,260	$22,231	127
5.00 to 5.49	55	277	8.1	21,459	$132,967	$43,069	155
4.50 to 4.99	82	275	8.4	22,244	$161,924	$56,357	205
4.00 to 4.49	57	270	7.9	22,231	$164,458	$60,078	223
3.50 to 3.99	32	175	7.1	21,299	$115,756	$53,137	304
Less than 3.50	27	99	7.2	20,386	$67,249	$20,814	210

On average, farms with feed and crop expenses exceeding $5.50 per hundredweight of milk reported well below average profits. This is especially striking when the profit measure of labor and management income per operator is presented on a per cow basis. Farms reporting purchased feed and crop expense between $3.50 and $3.99 per hundredweight of milk, reported the highest labor and management income per operator per cow.

Capital and Labor Efficiency Analysis

Capital efficiency factors measure how intensively capital is being used in the farm business. Measures of labor efficiency are key indicators of the work accomplished by each worker.

Table 39.

CAPITAL EFFICIENCY
314 New York Dairy Farms, 1999

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	$249,829	$6,368	$2,765	$5,059
Real estate		$2,562		$2,035
Machinery & equipment	$45,615	$1,163	$505	
Ratios				
Asset turnover	Operating Expense	Interest Expense		Depreciation Expense
0.59	0.73	0.05		0.07
Average Top 10% Farms:*				
Farm capital	$261,508	$5,392	$3,030	$5,667
Real estate		$1,899		$1,996
Machinery & equipment	$45,688	$942	$529	
Ratios				
Asset turnover ratio	Operating Expense	Interest Expense		Depreciation Expense
0.75	0.70	0.04		0.06

*Average of 31 farms with highest rates of return to all capital (without appreciation).

Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets. The relationship the asset turnover ratio has to farm profitability and other factors is shown in the following table. As a general rule, dairy farmers should aim for an asset turnover ratio of 0.6 or higher. The operational ratios reflect the relationship of expense categories to total farm receipts. The sum of the operating, interest, and depreciation expense ratios expresses total farm expenses per dollar of total farm receipts.

Table 40.

ASSET TURNOVER AND PROFITABILITY
314 New York Dairy Farms, 1999

Ratio	No. of Farms	No. of Cows	Farm Capital (average for year) Per Cow	Farm Capital (average for year) Per Worker	Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
≥ .80	17	432	$4,357	$203,698	$147,701	$304,985
.70 to .79	39	434	5,410	227,964	96,969	241,466
.60 to .69	50	296	6,098	246,911	53,060	158,187
.50 to .59	66	249	6,751	272,879	48,938	138,547
.40 to .49	70	130	7,663	263,550	13,530	59,654
.30 to .39	48	88	9,240	272,871	3,594	43,170
Less than .30	24	55	10,912	274,035	-7,426	19,633

The 31 farms with the highest rates of return on all capital (without appreciation) were above the average of all 314 farms in 2 measures of labor efficiency. The top 10 percent averaged 10 more cows per worker and sold 36 percent more milk per worker than the average of all farms.

Table 41.

LABOR EFFICIENCY
314 New York Dairy Farms, 1999

Labor Efficiency	Average Farms Total	Average Farms Per Worker*	Average Top 10% Farms Total	Average Top 10% Farms Per Worker*
Cows, average number	224	39	598	49
Milk sold, pounds	4,793,159	839,432	14,027,628	1,137,683
Tillable acres	516	90	1,064	86

*The method used to calculate worker equivalent incorporates the number of hours actually worked by the owner/operators instead of using a standard 12 months for each full-time owner/operator of the business.

The labor force averaged 5.71 full-time worker equivalents per farm (based on 230 hours per month). Thirty-one percent of the labor was supplied by the farm operator/managers. There were two operators on 142 farms, three on 40 farms, and 12 farms reported four or more operators.

Labor costs, labor efficiency, and farm profitability are closely related. Farms with high rates of return can attribute some of their success to the control of labor and machinery costs. Labor and machinery costs average $86 per cow and $0.85 per cwt. less on the 31 farms in the top decile.

Table 42.

LABOR FORCE INVENTORY AND COST ANALYSIS
314 New York Dairy Farms, 1999

Labor Force	Months*	Age	Years of Education	Value of Labor & Management
Operator number 1	13.8	46	13	$29,911
Operator number 2	5.6	43	13	12,366
Operator number 3	1.5	39	13	3,670
Operator number 4	0.5	28	11	1,121
Family paid	4.8			Total $47,068
Family unpaid	3.0			
Hired	39.2			
Total	68.5	÷ 12 =	5.71 Worker Equivalent	
			1.76 Operator/Manager Equivalent	
Average Top 10% Farms:**				
Total	148.0	÷ 12 =	12.33 Worker Equivalent	
Operators'			1.68 Operator/Manager Equivalent	

	Average 314 Farms			Avg. Top 10% Farms**	
Labor Costs	Total	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Value operators' labor ($1,800/mo.)	$ 38,520	$ 172	$ .80	$ 66	$ .28
Family unpaid ($1,800/mo.)	5,400	24	.11	6	.02
Hired	102,335	457	2.14	554	2.36
Total Labor	$146,335	$ 653	$ 3.05	$ 626	$ 2.66
Machinery Cost	112,450	502	2.35	444	1.89
Total Labor & Machinery	$258,705	$ 1,155	$ 5.40	$1,069	$ 4.55
Hired labor exp. per hired worker equiv.	27,910			32,004	
Hired labor exp. as % of milk sales	14.3%			15.8%	

*See footnote for Table 41.
**Average of 31 farms with highest rates of return to all capital (without appreciation).

The relationship of labor efficiency to net farm income is positive on the farms. The higher outputs of milk sold per worker are partially attributable to more and higher producing cows.

Table 43.

MILK SOLD PER WORKER AND NET FARM INCOME
314 New York Dairy Farm, 1999

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (w/o apprec.)	Labor & Mgmt. Income Per Operator
Under 400,000	53	58	16,308	$25,683	$478
400,000 to 499,999	28	79	17,194	32,480	2,597
500,000 to 599,999	33	98	17,444	42,113	7,403
600,000 to 699,999	50	162	19,886	83,472	26,049
700,000 to 799,999	44	175	20,850	83,871	27,459
800,000 to 899,999	33	258	21,339	131,007	37,727
900,000 to 999,999	25	459	22,102	187,982	56,198
1,000,000 & over	48	540	23,300	371,407	154,872

Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 314 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the 10 percent for any other factor.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many things affect the level of costs, and must be taken into account when analyzing the factors.

Table 44.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
314 New York Dairy Farms, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
18.6	851	19,987,607	25,069	5.3	23	55	1,213,661
9.9	418	9,126,584	23,355	4.0	20	47	1,009,282
7.0	279	5,925,301	22,344	3.4	19	44	888,653
5.3	198	3,903,863	21,492	3.0	17	40	798,241
4.2	145	2,857,909	20,435	2.6	16	37	731,684
3.5	111	2,145,630	19,413	2.3	15	34	660,719
3.0	87	1,605,859	18,334	2.0	14	31	597,681
2.5	71	1,261,635	17,209	1.7	12	28	493,858
2.0	56	1,003,180	15,764	1.5	10	24	390,912
1.4	40	588,644	12,475	1.0	8	18	281,530

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$365	15%	$278	$778	$506	$3.25
519	20	381	933	703	3.81
590	22	427	1,028	805	4.25
653	23	463	1,111	866	4.48
700	24	504	1,164	921	4.67
743	25	541	1,223	971	4.88
793	27	582	1,299	1,021	5.05
852	28	624	1,398	1,089	5.29
916	30	701	1,540	1,163	5.71
1,036	37	845	1,847	1,300	6.78

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

The profitability section shows the variation in farm income by decile and enables a dairy farmer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy farmer who ranks at or near the top of most of these columns is in a very enviable position.

Table 44. (continued)

FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
314 New York Dairy Farms, 1999

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
$3,817	$16.50	$1,200	$7.89	$2,176	$12.45
3,461	15.56	1,635	9.24	2,532	13.42
3,293	15.27	1,832	9.90	2,752	13.97
3,160	15.05	1,998	10.35	2,864	14.48
3,046	14.86	2,137	10.78	2,987	14.98
2,908	14.73	2,262	11.20	3,101	15.43
2,743	14.58	2,367	11.66	3,211	16.16
2,529	14.39	2,479	12.10	3,306	16.79
2,320	14.12	2,636	12.76	3,459	17.98
1,838	13.61	2,955	14.43	3,867	22.84

Profitability

Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
$578,366	$1,174	0.33	$668,929	$1,351	$454,170	$318,071
222,031	863	0.25	270,325	1,035	150,302	88,408
136,405	763	0.22	180,888	922	82,986	54,378
96,263	663	0.19	124,395	824	54,339	39,122
74,615	550	0.17	91,554	697	38,704	26,018
56,349	464	0.14	69,234	615	25,330	15,699
39,420	376	0.11	53,026	520	13,406	9,369
26,824	290	0.09	38,225	405	1,342	876
15,421	173	0.16	26,086	282	-11,196	-10,038
-10,114	-114	-0.06	4,679	12	-42,427	-38,149

Farm Business Charts for farms with freestall barns and 150 cows or less, 150 to 300 cows, and more than 300 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are discussed in the supplemental section on pages 61-65.

Financial Analysis and Management

Analysis and astute management of farm financial affairs must receive high priority if the farm business is to be successful and if the farm family is to achieve a reasonable living standard.

The farm finance checklist and the financial analysis chart are provided to serve as guidelines. Dairy farmers can determine how their financial management measures up by comparing with average data from other farms.

Table 45.

A FARM FINANCE CHECKLIST
314 New York Dairy Farms, 1999

	Average 314 Farms		Average Top 10% Farms*	
How farm assets are being used (average for the year):				
Total assets (capital) per cow	$6,368		$5,392	
Farm assets in livestock	24%		27%	
Farm assets in farm real estate	40%		35%	
Farm assets in machinery	18%		17%	
Measures of debt capacity & debt structure:				
Equity in the business	58%		53%	
Farm debt per cow	$2,702		$2,605	
Long term debt/asset ratio**	0.40		0.47	
Intermediate & current term debt/asset ratio**	0.43		0.46	
Intermediate & current term debt as % of total	62%		64%	
Debt repayment ability:***				
Cash flow coverage ratio	1.31		1.63	
Debt coverage ratio	1.60		2.39	
Debt payments made per cow	$582		$489	
Debt payments made as % of milk receipts	18%		14%	
Indicators of annual financial progress:	Amount	Percent	Amount	Percent
Annual change in farm assets	$126,343	+9.3%	+$501,757	+16.9%
Annual change in farm debts	+$44,351	+7.7%	+$150,834	+10.3%
Annual change in farm net worth	$81,992	+10.5%	+$350,923	+23.3%

*Thirty farms with highest rates of return on all capital (without appreciation).
**Long or intermediate and current term debt divided by long or intermediate and current term assets.
***Average of 248 farms that participated in DFBS both in 1998 and 1999. Twenty-six of the 31 top 10 percent farms participated both years.

The most profitable farms carried $97 less debt per cow, the average equity in their businesses was 5 percent lower than that of the average of all 314 farms, but they had a greater ability to make 1999 debt payments.

Average farm assets grew 1.6 percentage points faster than debt during 1999 on the 314 dairy farms. Average farm net worth increased 10.5 percent.

The farm financial analysis chart is designed just like the farm business chart on pages 42-43 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 12, 14, 16, 20, and 40 in this publication.

Table 46.

FINANCIAL ANALYSIS CHART
314 New York Dairy Farms, 1999

Liquidity (repayment)							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
$128	$1,177	5.71	7.13	4%	$217	57%	30.96
247	868	2.38	2.84	8	929	34	5.03
333	757	1.88	2.19	11	1,464	27	3.54
383	675	1.61	1.75	13	1,862	22	2.73
430	599	1.38	1.52	14	2,343	18	2.10
476	546	1.17	1.28	16	2,758	13	1.71
521	486	1.04	1.10	18	3,067	9	1.45
581	406	0.89	0.94	21	3,426	5	1.20
710	300	0.70	0.73	24	3,882	-2	0.91
922	69	0.29	0.31	37	5,125	-17	0.55

Solvency				Profitability	
		Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
Leverage Ratio*	Percent Equity	Current & Intermediate	Long Term	Equity	Investment**
0.06	98%	0.03	0.00	36%	19%
0.17	88	0.11	0.00	19	14
0.29	80	0.19	0.04	14	11
0.40	73	0.26	0.18	11	9
0.56	66	0.33	0.29	8	8
0.70	60	0.39	0.38	6	6
0.90	54	0.47	0.46	3	4
1.13	48	0.55	0.56	0	3
1.50	40	0.64	0.73	-3	0
3.91	23	0.88	1.19	-31	-5

Efficiency (Capital)					
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation	Farm Net Worth, End Year
.85	$1,210	$527	$4,275	$449,790	$3,107,799
.72	1,808	775	5,134	169,937	1,452,198
.64	2,109	944	5,668	93,388	1,021,329
.59	2,336	1,082	6,126	59,438	804,166
.54	2,628	1,204	6,555	42,597	644,876
.50	2,935	1,348	6,999	29,284	547,645
.46	3,307	1,493	7,497	20,531	429,658
.41	3,836	1,738	8,214	12,457	347,748
.35	4,552	2,103	9,192	838	251,306
.25	6,622	2,899	11,691	-47,361	124,028

*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.
**Return on all farm capital (no deduction for interest paid) divided by total farm assets.

Herd Size Comparisons

The 314 New York dairy farms have been sorted into nine herd size categories and averages for the farms in each category are presented in Tables 47 through 51. Note that after the less than 50 cow category, the herd size categories increase by 25 cows up to 100 cows, by 50 cows up to 200 cows, by 100 cows up to 400 cows, and by 200 cows up to 600 cows.

As herd size increases, the average profitability generally increases (Table 47). Net farm income without appreciation averaged $21,114 per farm for the less than 50 cow farms and $639,672 per farm for those with 600 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital.

It is more than size of herd that determines profitability on dairy farms. Farms with 600 and over cows averaged $649 net farm income per cow while the 100 to 199 cow dairy farms average $466 net farm income per cow. The 200 to 299 herd size category had the second highest net farm income per cow at $580. Other factors that affect profitability and their relationship to the size classifications are shown in Table 48.

Table 47.

COWS PER FARM AND FARM FAMILY INCOME MEASURES
314 New York Dairy Farms, 1999

Number of Cows	Number of Farms	Ave. No. of Cows	Net Farm Income Without Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return to all Capital Without Apprec.
Under 50	32	40	$21,114	$528	$1,363	-0.9%
50 to 74	56	61	31,904	523	6,030	0.9%
75 to 99	42	86	47,042	547	12,447	3.2%
100 to 149	52	125	58,229	466	12,853	3.3%
150 to 199	25	176	82,057	466	23,447	5.0%
200 to 299	37	245	142,189	580	49,714	8.3%
300 to 399	22	361	179,973	499	63,828	9.1%
400 to 599	27	491	229,767	468	71,521	8.4%
600 & over	21	986	639,672	649	200,411	12.0%

Net farm income per cow increased as economies were attained. Farms with over 200 cows saw purchased inputs increase per cow before economies of size again appeared. Net farm income per cow will increase as farms become larger if the costs of increased purchased inputs are offset by greater and more efficient output.

The farms with 600 and more cows averaged more milk sold per cow than any other size category (Table 48). With 23,517 pounds of milk sold per cow, farms in the largest herd size group averaged 15 percent more milk output per cow than the average of all herds in the summary with less than 600 cows.

The ability to reach high levels of milk output per cow with large herds is a major key to high profitability. Three times a day milking (3X) and supplementing with bST are herd management practices commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3X have been successful. Only 5 percent of the 130 DFBS farms with less than 100 cows used a milking frequency greater than 2X. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 149 cows reported 10 percent of the herds milking more often than 2X, the 150-199 cow herds reported 40 percent, 200-299 cow herds reported 35 percent, 300-399 cow herds reported 73 percent, 400-599 cow herds reported 93 percent, and the 600 cow and larger herds reported 90 percent exceeding the 2X milking frequency.

Table 48.

COWS PER FARM AND RELATED FARM FACTORS
314 New York Dairy Farms, 1999

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Till-able Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 50	40	16,588	3,637	3.8	6.3	$8,805	$9.97	$18.36
50 to 74	61	17,661	4,653	3.5	7.9	7,947	10.42	16.68
75 to 99	86	18,995	5,497	3.4	8.3	7,577	10.62	15.81
100 to 149	125	19,173	6,466	2.9	7.2	6,991	11.26	15.70
150 to 199	176	20,008	7,167	2.8	8.1	7,121	11.36	15.16
200 to 299	245	21,067	8,320	2.4	7.9	6,195	11.16	14.29
300 to 399	361	21,437	9,016	2.1	7.5	5,585	11.33	13.88
400 to 599	491	22,145	9,519	2.0	8.0	6,308	11.66	14.30
600 & over	986	23,517	11,187	1.8	8.1	5,855	11.14	13.29

Bovine somatotropin (bST), was used to a greater extent on the large herd farms. bST was used sometime during 1999 on 25 percent of the herds with less than 100 cows, 63 percent of the farms with 100 to 299 cows and on 91 percent of the farms with 300 cows and more.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged over 861,000 pounds of milk sold per worker while the farms with less than 100 cows averaged less than 460,000 pounds per worker.

In addition to achieving the highest productivity per cow and per worker, the largest farms practiced the most efficient use of cropland with 1.8 tillable acres per cow, and the most efficient use of farm capital with an average investment of $5,855 per cow.

The last column in Table 48 may be the most important in explaining why profits were significantly higher on the 600 plus cow farms. The 21 farms with 600 and more cows held their average total costs of producing milk to $13.29 per hundredweight, $1.51 below the $14.80 average for the remaining 293 dairy farms. The lower average costs of production plus a similar milk price gave the managers of the 600 plus cow dairy farms profit margins (milk price less total cost of producing milk) that averaged $1.73 per hundredweight above the average of the other 293 DFBS farms.

A detailed list of accrual expenses, receipts and a profitability analysis is presented in Table 49, on pages 48 and 49 for the nine herd size categories. Purchased feed is the largest expense on all farms, regardless of size. However, large farms find hired labor expense as the second largest expense category.

Assets, liabilities and financial measures are presented in Table 50 on pages 50-53. All herd size categories saw an increase in net worth during 1999. The largest herd size category experienced an increase in net worth of over $400,000. However, percent equity went down as herd size increased. The largest herds had 53% equity; while the smaller herds averaged 78%.

Selected business factors by herd size group are presented in Table 51 on pages 54 and 55. Larger farms are, on average, more profitable; but no farm is large enough to insure a profit. For a more detailed analysis of large herd farms, see E.B. 2000-04, Dairy Farm Business Summary, New York Large Herd Farms, 300 Cows or Larger, 1999. For analysis of smaller herds, see E.B. 2000-12, Dairy Farm Business Summary, New York Small Herd Farms, 65 Cows or Fewer, 1999.

Table 49.

FARM BUSINESS SUMMARY BY HERD SIZE
314 New York Dairy Farms, 1999

Item	Farm Size:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 149 Cows
Number of farms		32	56	42	52
ACCRUAL EXPENSES					
Hired labor		$3,354	$10,164	$17,299	$30,455
Dairy grain & concentrate		23,124	38,281	58,641	88,565
Dairy roughage		2,470	3,777	2,220	8,559
Nondairy feed		0	0	4	440
Machine hire, rent & lease		2,059	3,134	5,682	9,182
Machine repairs & farm vehicle expense		6,324	11,691	15,795	22,878
Fuel, oil & grease		2,043	4,097	5,419	7,260
Replacement livestock		1,243	3,587	3,074	8,285
Breeding		1,256	2,408	3,521	4,713
Veterinary & medicine		1,981	3,586	6,090	10,127
Milk marketing		5,415	7,533	9,977	15,066
Bedding		485	876	1,546	2,839
Milking supplies		2,985	4,938	6,138	9,091
Cattle lease & rent		0	33	20	22
Custom boarding		483	527	702	2,176
bST expense		248	693	1,961	3,982
Other livestock expense		2,037	3,146	5,106	6,137
Fertilizer & lime		2,857	4,484	7,763	9,826
Seeds & plants		1,156	2,535	3,912	5,387
Spray & other crop expense		970	2,007	4,856	5,885
Land, building & fence repair		2,928	3,836	4,940	6,748
Taxes & rent		4,247	7,493	10,803	12,725
Utilities		3,635	5,847	7,515	9,727
Interest paid		6,555	8,525	14,746	19,463
Misc. (including insurance)		3,198	5,607	7,098	9,822
Total Operating Expenses		$81,055	$138,806	$204,826	$309,361
Expansion livestock		0	174	931	3,630
Machinery depreciation		8,881	10,688	14,431	16,691
Building depreciation		2,510	3,911	6,704	11,787
Total Accrual Expenses		$92,446	$153,579	$226,892	$341,469
ACCRUAL RECEIPTS					
Milk sales		$98,860	$159,503	$241,035	$356,117
Dairy cattle		6,156	10,598	14,496	15,951
Dairy calves		1,043	1,663	2,187	3,138
Other livestock		524	76	35	1,022
Crops		-425	2,438	2,147	5,252
Misc. receipts		7,401	11,205	14,034	18,217
Total Accrual Receipts		$113,560	$185,483	$273,934	$399,698
PROFITABILITY ANALYSIS					
Net farm income (without appreciation)		$21,114	$31,904	$47,042	$58,229
Net farm income (with appreciation)		$27,932	$42,524	$55,950	$75,949
Labor & management income		$1,649	$8,141	$18,172	$22,107
Number of operators		1.21	1.35	1.46	1.72
Labor & management income/operator		$1,363	$6,030	$12,447	$12,853
Rates of return on:					
Equity capital without appreciation		-3.6%	-1.2%	1.3%	1.6%
Equity capital with appreciation		-1.1%	1.9%	3.3%	4.7%
All capital without appreciation		-0.9%	0.9%	3.2%	3.3%
All capital with appreciation		1.0%	3.1%	4.5%	5.3%

Table 49. (continued)

FARM BUSINESS SUMMARY BY HERD SIZE
314 New York Dairy Farms, 1999

Item	Farm Size:	150 to 199 Cows	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms		25	37	22	27	21
ACCRUAL EXPENSES						
Hired labor		$69,545	$97,379	$174,824	$261,155	$614,648
Dairy grain & concentrate		126,986	192,478	278,554	412,433	892,337
Dairy roughage		3,817	6,159	30,123	29,748	35,202
Nondairy feed		152	68	0	0	0
Machine hire, rent & lease		13,728	24,788	27,832	36,361	102,103
Machine repairs & farm vehicle expense		35,458	41,794	59,341	80,418	145,737
Fuel, oil & grease		9,784	14,062	17,717	24,519	45,218
Replacement livestock		9,347	10,171	26,354	36,826	31,105
Breeding		5,037	8,855	10,894	18,921	35,521
Veterinary & medicine		13,771	25,238	35,036	54,592	120,027
Milk marketing		19,896	30,188	37,610	51,977	83,120
Bedding		5,680	7,176	14,046	23,977	59,854
Milking supplies		14,115	18,535	25,843	30,305	72,801
Cattle lease & rent		338	670	4,120	4,972	25,340
Custom boarding		3,781	8,656	12,236	15,488	45,594
bST expense		5,065	10,991	19,957	30,860	72,113
Other livestock expense		6,403	8,890	11,145	18,392	16,965
Fertilizer & lime		14,223	20,647	21,422	36,678	69,119
Seeds & plants		8,850	10,637	18,847	21,879	39,012
Spray & other crop expense		10,920	12,228	19,837	29,032	47,522
Land, building & fence repair		10,280	17,973	19,733	25,474	55,948
Taxes & rent		21,152	27,195	31,551	43,666	97,459
Utilities		13,299	15,471	22,357	28,586	57,747
Interest paid		31,636	43,187	68,656	103,843	116,103
Misc. (including insurance)		13,681	19,255	22,245	36,751	59,237
Total Operating Expenses		$466,941	$672,692	$1,010,281	$1,456,856	$2,989,832
Expansion livestock		12,893	27,138	27,138	46,806	39,746
Machinery depreciation		26,775	47,870	47,870	72,631	122,533
Building depreciation		15,870	23,599	33,319	58,919	114,620
Total Accrual Expenses		$522,479	$747,619	$1,118,608	$1,635,212	$3,266,731
ACCRUAL RECEIPTS						
Milk sales		$524,593	$777,693	$1,138,236	$1,630,212	$3,460,884
Dairy cattle		36,068	50,198	76,364	111,694	196,131
Dairy calves		4,320	5,756	10,179	14,440	24,031
Other livestock		-270	10,658	2,908	1,823	3,716
Crops		6,806	11,862	28,008	49,437	104,113
Misc. receipts		33,020	33,641	42,885	57,373	117,529
Total Accrual Receipts		$604,536	$889,808	$1,298,581	$1,864,979	$3,906,403
PROFITABILITY ANALYSIS						
Net farm income (without appreciation)		$82,057	$142,189	$179,973	$229,767	$639,672
Net farm income (with appreciation)		$113,986	178,725	$221,804	$294,449	$743,001
Labor & management income		$39,391	93,463	$125,742	$143,758	$486,999
Number of operators		1.68	1.88	1.97	2.01	2.43
Labor & management income/operator		$23,447	$49,714	$63,828	$71,521	$200,411
Rates of return on:						
Equity capital without appreciation		3.9%	9.5%	11.1%	9.6%	17.6%
Equity capital with appreciation		7.8%	13.7%	15.1%	13.6%	21.0%
All capital without appreciation		5.0%	8.3%	9.1%	8.4%	12.0%
All capital with appreciation		7.6%	10.7%	11.2%	10.5%	13.8%

Table 50.

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
314 New York Dairy Farms, 1999

Farms with:	Less than 50 Cows		50 to 74 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$4,184	$4,839	$4,850	$6,278
Accounts receivable	9,410	6,971	15,664	12,222
Prepaid expenses	133	106	59	15
Feed & supplies	18,364	18,922	31,003	33,483
Livestock*	60,403	63,017	94,400	100,880
Machinery & equipment*	67,460	78,888	97,192	103,548
Farm Credit stock	852	737	927	1,081
Other stock & certificates	796	876	2,701	3,025
Land & buildings*	182,721	185,721	229,485	232,737
Total Farm Assets	$344,323	$360,077	$476,281	$493,269
Personal cash, checking & savings	$3,878	$3,328	$1,746	$1,739
Cash value of life insurance	4,693	5,421	12,178	9,586
Nonfarm real estate	11,653	11,852	13,131	11,655
Auto (personal share)	4,535	3,603	3,907	4,891
Stocks & bonds	2,951	3,454	10,709	14,592
Household furnishings	12,222	12,470	10,488	10,560
All other	14,943	16,739	2,190	3,520
Nonfarm Assets**	$54,857	$56,867	$54,349	$56,543
Farm & Nonfarm Assets	$399,180	$416,944	$530,630	$549,812
LIABILITIES				
Accounts payable	$2,252	$1,850	$7,698	$5,666
Operating debt	2,743	2,503	4,292	4,219
Short term	393	277	1,848	857
Advanced government receipt	16	15	0	73
Current Portion:				
Intermediate	6,135	6,809	8,644	10,912
Long Term	3,277	2,833	4,290	3,105
Intermediate***	26,086	29,513	49,162	48,727
Long term*	41,895	36,819	63,866	64,359
Total Farm Liabilities	$82,798	$80,619	$140,300	$137,918
Nonfarm Liabilities**	5,954	6,353	4,031	4,203
Farm & Nonfarm Liabilities	$88,752	$86,972	$144,331	$142,121
Farm Net Worth (Equity Capital)	$261,525	$279,458	$335,981	$355,351
Farm & Nonfarm Net Worth	$310,428	$329,972	$386,299	$407,691

FINANCIAL MEASURES	Less than 50 Cows	50 to 74 Cows
Percent Equity	78%	72%
Debt/asset ratio-long term	0.20	0.28
Debt/asset ratio-intermediate & current	0.25	0.28
Change in net worth with appreciation	$17,933	$19,370
Total farm debt per cow	$1,966	$2,224
Debt payments made per cow	$521	$620
Debt payments as % of milk sales	20%	23%
Amount available for debt service	$28,437	$30,232
Cash flow coverage ratio for 1999	1.51	1.26
Debt coverage ratio for 1999	1.46	1.24

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1999.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 50. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
314 New York Dairy Farms, 1999

Farms with:	75 to 99 Cows		100 to 149 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$6,898	$14,469	$7,241	$7,171
Accounts receivable	26,964	21,582	35,478	27,336
Prepaid expenses	500	489	107	354
Feed & supplies	51,803	56,150	71,039	79,435
Livestock*	130,750	139,363	182,909	194,268
Machinery & equipment*	130,530	144,195	165,393	180,131
Farm Credit stock	2,195	2,250	3,490	3,273
Other stock & certificates	5,265	6,130	12,511	13,775
Land & buildings*	277,692	285,970	379,016	384,734
Total Farm Assets	$632,597	$670,571	$857,184	$890,477
Personal cash, checking & savings	$3,520	$3,925	$8,496	$6,178
Cash value of life insurance	10,049	12,260	7,463	7,880
Nonfarm real estate	12,295	15,245	59,083	59,577
Auto (personal share)	5,731	5,536	6,185	6,262
Stocks & bonds	18,365	24,519	12,889	16,405
Household furnishings	6,625	7,000	6,212	6,988
All other	5,656	7,398	9,768	9,786
Nonfarm Assets**	$62,241	$75,883	$110,051	$113,076
Farm & Nonfarm Assets	$694,838	$746,454	$967,235	$1,003,553
LIABILITIES				
Accounts payable	$11,192	$10,054	$14,389	$14,266
Operating debt	4,990	6,522	15,812	17,645
Short term	1,521	2,870	1,529	1,760
Advanced government receipt	205	205	47	51
Current Portion:				
Intermediate	12,710	15,616	21,550	24,862
Long Term	5,087	8,402	7,859	8,321
Intermediate***	67,615	72,889	113,247	110,081
Long term*	102,464	99,362	121,981	117,383
Total Farm Liabilities	$205,783	$216,190	$296,414	$294,370
Nonfarm Liabilities**	2,439	2,193	6,535	4,891
Farm & Nonfarm Liabilities	$208,222	$218,383	$302,949	$299,261
Farm Net Worth (Equity Capital)	$426,814	$454,381	$560,770	$596,107
Farm & Nonfarm Net Worth	$486,616	$528,071	664,286	$704,292

FINANCIAL MEASURES	75 to 99 Cows	100 to 149 Cows
Percent equity	68%	67%
Debt/asset ratio-long term	0.35	0.31
Debt/asset ratio-intermediate & current	0.30	0.35
Change in net worth with appreciation	$27,567	$35,337
Total farm debt per cow	$2,485	$2,318
Debt payments made per cow	$543	$488
Debt payments as % of milk sales	19%	17%
Amount available for debt service	$60,890	$66,919
Cash flow coverage ratio for 1999	1.57	1.14
Debt coverage ratio for 1999	1.61	1.23

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1999.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 50. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
314 New York Dairy Farms, 1999

Farms with:	150 to 199 Cows		200 o 299 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS				
Farm cash, checking & savings	$9,600	$8,646	$11,146	$8,719
Accounts receivable	50,414	47,100	74,199	59,576
Prepaid expenses	683	659	936	1,194
Feed & supplies	119,680	132,729	152,987	188,526
Livestock*	253,951	281,643	366,350	400,440
Machinery & equipment*	244,072	268,865	260,638	290,750
Farm Credit stock	3,093	3,531	4,344	4,576
Other stock & certificates	21,433	25,200	20,523	20,313
Land & buildings*	502,458	532,711	566,619	603,699
Total Farm Assets	$1,205,384	$1,301,084	$1,457,742	$1,577,793
Personal cash, checking & savings	$600	$120	$7,864	$8,890
Cash value of life insurance	12,415	11,735	25,783	26,298
Nonfarm real estate	74,800	74,800	34,057	33,031
Auto (personal share)	5,268	3,550	3,881	4,738
Stocks & bonds	200	1,180	70,475	81,230
Household furnishings	10,700	10,700	10,531	10,531
All other	26,358	25,359	16,285	15,050
Nonfarm Assets**	$130,341	$127,444	$168,876	$179,768
Farm & Nonfarm Assets	$1,335,725	$1,428,528	$1,626,618	$1,757,561
LIABILITIES				
Accounts payable	$14,276	$21,552	$14,325	$13,661
Operating debt	17,985	30,694	27,287	33,012
Short term	1,996	1,032	8,782	9,206
Advanced government receipt	1,346	0	0	0
Current Portion:				
Intermediate	31,582	33,714	52,872	58,711
Long Term	9,411	14,449	11,303	12,869
Intermediate***	172,085	186,932	291,909	301,433
Long term*	172,997	176,177	236,057	223,890
Total Farm Liabilities	$421,667	$464,550	$642,534	$652,782
Nonfarm Liabilities**	2,258	13,949	2,336	2,411
Farm & Nonfarm Liabilities	$423,935	$478,499	$644,870	$655,193
Farm Net Worth (Equity Capital)	$783,707	$836,534	$815,208	$925,011
Farm & Nonfarm Net Worth	$911,790	$950,029	$981,748	$1,102,368

FINANCIAL MEASURES	150 to 199 Cows	200 to 299 Cows
Percent equity	64%	59%
Debt/asset ratio-long term	0.33	0.37
Debt/asset ratio-intermediate & current	0.38	0.44
Change in net worth with appreciation	$52,827	$109,803
Total farm debt per cow	$2,567	$2,611
Debt payments made per cow	$455	$657
Debt payments as % of milk sales	15%	21%
Amount available for debt service	$100,611	$159,392
Cash flow coverage ratio for 1999	1.39	1.23
Debt coverage ratio for 1999	1.54	1.50

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1999.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 50. (cont'd)

FARM FAMILY FINANCIAL SITUATION BY HERD SIZE
314 New York Dairy Farms, 1999

Farms with:	300 to 399 Cows		400 to 599 Cows		More than 600 Cows	
Item	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
ASSETS						
Farm cash, checking & savings	$5,621	$9,612	$22,071	$22,845	$-5,148	$38,261
Accounts receivable	105,273	79,018	122,274	104,322	233,275	185,514
Prepaid expenses	240	541	840	3,123	15,572	22,263
Feed & supplies	189,343	232,670	291,390	354,675	679,163	929,759
Livestock*	514,704	566,610	718,365	798,443	1,450,514	1,511,830
Machinery & equipment*	319,594	366,604	509,870	590,579	911,970	997,838
Farm Credit stock	5,562	5,376	18,926	18,109	22,700	26,497
Other stock & certificates	38,734	48,220	58,814	69,073	129,135	160,034
Land & buildings*	720,931	823,562	1,159,532	1,330,748	2,040,538	2,197,194
Total Farm Assets	$1,900,002	$2,132,213	$2,902,082	$3,291,917	$5,477,719	$6,069,190
Personal cash, checking & savings	$2,940	$2,536	$2,354	$5,210	$0	$0
Cash value of life insurance	5,635	7,450	15,823	19,039	36,231	46,948
Nonfarm real estate	11,500	11,500	62,950	73,000	0	0
Auto (personal share)	3,420	8,200	5,290	5,400	0	0
Stocks & bonds	1,050	13,517	6,720	9,914	22,335	40,600
Household furnishings	4,600	6,600	12,500	12,700	0	0
All other	0	0	0	3,100	0	0
Nonfarm Assets**	$29,145	$49,803	$105,637	$128,363	$58,566	$87,548
Farm & Nonfarm Assets	$1,929,147	$2,182,016	$3,007,719	$3,420,280	$5,536,285	$6,156,738
LIABILITIES						
Accounts payable	$41,870	$43,064	$34,077	$27,783	$37,721	$38,220
Operating debt	53,037	69,629	44,819	72,568	291,368	433,151
Short term	9,172	11,375	29,047	30,020	7,371	6,137
Advanced government receipts	965	141	0	0	257	0
Current Portion:						
Intermediate	70,081	79,784	114,482	126,870	112,760	153,303
Long Term	21,991	23,203	37,085	33,359	79,929	138,379
Intermediate***	354,142	403,104	536,529	635,980	1,053,090	1,093,867
Long term*	367,134	407,866	553,771	664,432	1,108,088	979,951
Total Farm Liabilities	$918,393	$1,038,166	$1,349,810	$1,591,013	$2,690,584	$2,843,008
Nonfarm Liabilities**	10,686	635	28,000	26,767	0	0
Farm & Nonfarm Liabilities	$929,079	$1,038,801	$1,377,810	$1,617,780	$2,690,584	$2,843,008
Farm Net Worth (Equity Capital)	981,609	1,094,047	1,552,272	1,700,904	2,787,135	3,226,182
Farm & Nonfarm Net Worth	$1,000,068	$1,143,215	$1,629,909	$1,802,500	$2,845,701	$3,313,730

FINANCIAL MEASURES	300 to 399 Cows	400 to 599 Cows	More than 600 Cows
Percent equity	51%	52%	53%
Debt/asset ratio-long term	.50	.50	.45
Debt/asset ratio-intermediate & current	.48	.47	.48
Change in net worth with appreciation	$112,438	$148,632	$439,047
Total farm debt per cow	$2,791	$3,042	$2,818
Debt payments made per cow	$697	$853	$388
Debt payments as % of milk sales	22%	25%	11%
Amount available for debt service	$212,796	$313,192	$621,668
Cash flow coverage ratio for 1999	1.11	1.18	1.64
Debt coverage ratio for 1999	1.24	1.42	2.32

*Includes discounted lease payments.
**Average of farms reporting nonfarm assets and liabilities for 1999.
***Includes Farm Credit stock & discounted lease payments for cattle & machinery.

Table 51.

SELECTED BUSINESS FACTORS BY HERD SIZE
314 New York Dairy Farms, 1999

Item — Farms with:	Less than 50 Cows	50 to 74 Cows	75 to 99 Cows	100 to 149 Cows
Number of farms	32	56	42	52
Cropping Program Analysis				
Total Tillable acres	151	215	288	358
Tillable acres rented*	54	87	121	159
Hay crop acres*	98	127	164	196
Corn silage acres*	18	46	75	89
Hay crop, tons DM/acre	1.7	2.2	2.2	2.3
Corn silage, tons/acre	13.0	12.9	13.7	14.2
Oats, bushels/acre	22	62	68	49
Forage DM per cow, tons	6.3	7.9	8.3	7.2
Tillable acres/cow	3.8	3.5	3.4	2.9
Fert. & lime expense/tillable acre	$18.92	$20.86	$26.95	$27.45
Total machinery costs	$22,966	$34,629	$48,195	$64,649
Machinery cost/tillable acre	$152	$161	$167	$181
Dairy Analysis				
Number of cows	40	61	86	125
Number of heifers	29	48	69	87
Milk sold, lbs.	665,606	1,084,254	1,627,249	2,392,579
Milk sold/cow, lbs.	16,588	17,661	18,995	19,173
Operating cost of prod. milk/cwt.	$9.97	$10.42	$10.62	$11.26
Total cost of prod. milk/cwt.	$18.36	16.68	$15.81	$15.70
Price/cwt. milk sold	$14.85	14.71	$14.81	$14.88
Purchased dairy feed/cow	$640	$689	$708	$777
Purchased dairy feed/cwt. milk	$3.85	$3.88	$3.74	$4.06
Purchased grain & concentrate as % of milk receipts	23%	24%	24%	25%
Purchased feed & crop expense/cwt. milk	$4.59	$4.71	$4.76	$4.94
Cull rate	25%	28%	30%	27%
Capital Efficiency				
Farm capital/worker	$192,459	$208,058	$220,130	$236,171
Farm capital/cow	8,805	7,947	7,577	6,991
Farm capital/tillable acre owned	3,631	3,787	3,902	4,391
Real estate/cow	4,606	3,789	3,277	3,055
Machinery investment/cow	1,829	1,645	1,597	1,382
Asset turnover ratio	0.34	0.40	0.43	0.48
Labor Efficiency				
Worker equivalent	1.83	2.33	2.96	3.70
Operator/manager equivalent	1.21	1.46	1.46	1.72
Milk sold/worker, lbs.	363,719	465,345	549,746	646,643
Cows/worker	22	26	29	34
Work units/worker	230	279	311	344
Labor cost/cow	$961	$783	$678	$614
Labor cost/tillable acre	$255	$222	$203	$214

*Average of all farms, not only those reporting data.

Table 51. (cont'd)

SELECTED BUSINESS FACTORS BY HERD SIZE
314 New York Dairy Farms, 1999

Item / Farms with:	150 to 199 Cows	200 to 299 Cows	300 to 399 Cows	400 to 599 Cows	600 or More Cows
Number of farms	25	37	22	27	21
Cropping Program Analysis					
Total Tillable acres	487	598	746	987	1,768
Tillable acres rented*	217	303	384	395	846
Hay crop acres*	237	288	305	428	748
Corn silage acres*	149	216	300	448	816
Hay crop, tons DM/acre	2.6	2.8	3.1	3.3	4.0
Corn silage, tons/acre	15.5	15.6	17.4	16.5	17.9
Oats, bushels/acre	6.5	0	0	46	0
Forage DM per cow, tons	8.1	7.9	7.5	8.0	8.1
Tillable acres/cow	2.8	2.4	2.1	2.0	1.8
Fert. & lime expense/tillable acre	$29.21	$34.53	$28.72	$37.16	$39.09
Total machinery costs	$98,568	$129,673	$169,915	$241,440	$463,336
Machinery cost/tillable acre	$202	$217	$228	$245	$262
Dairy Analysis					
Number of cows	176	245	361	491	986
Number of heifers	139	181	235	339	771
Milk sold, lbs.	3,518,992	5,167,015	7,744,509	10,879,879	23,189,783
Milk sold/cow, lbs.	20,008	21,067	21,437	22,145	23,517
Operating cost of prod. milk/cwt.	$11.36	$11.16	$11.33	$11.66	$11.14
Total cost of prod. milk/cwt.	15.16	$14.29	$13.88	$14.30	13.29
Price/cwt. milk sold	14.91	$15.05	$14.70	$14.98	14.92
Purchased dairy feed/cow	$743	$811	$855	$901	941
Purchased dairy feed/cwt. milk	$3.72	$3.84	$3.99	$4.06	$4.00
Purchased grain & concentrate as % of milk receipts	24%	25%	24%	25%	26%
Purchased feed & crop expense/cwt. milk	$4.68	$4.69	$4.76	$4.87	$4.67
Cull Rate	31%	29%	30%	35%	35%
Capital Efficiency					
Farm capital/worker	$255,241	$244,407	$234,704	$270,954	$278,507
Farm capital/cow	$7,121	6,195	5,585	6,308	5,855
Farm capital/tillable acre owned	4,642	5,145	5,569	5,231	6,262
Real estate/cow	2,941	2,388	2,139	2,536	2,149
Machinery investment/cow	1,457	1,125	950	1,121	968
Asset turnover ratio	0.51	0.61	0.66	0.62	0.69
Labor Efficiency					
Worker equivalent	4.91	6.21	8.59	11.43	20.73
Operator/manager equivalent	1.68	1.88	1.97	2.01	2.43
Milk sold/worker, lbs.	716,699	832,048	901,573	951,870	1,118,658
Cows/worker	36	39	42	43	48
Work units/worker	374	398	406	420	466
Labor cost/cow	$637	$594	$610	$637	$681
Labor cost/tillable acre	$230	$243	$295	$317	$380

*Average of all farms, not only those reporting data.

SUPPLEMENTAL INFORMATION

Comparisons of business performance by farms buying or growing forages, types of housing and herd size, bST usage, rotational grazers, milking frequency, same farms over 10 years, and dairy region are presented in this section. Farm receipts and expenses per cow and per hundredweight of milk sold for different levels of milk output and herd size groups, plus additional data, are included.

A word of caution to the reader on the interpretation of these data. It is the combination of resources and practices, and implementation of business management strategies by farmers that determine business performance. Examining one factor, while not holding all others constant, can lead to erroneous conclusions of cause and effect relationships. As an example, farms using bST have higher pounds of milk sold per cow. Is it exclusively bST or is it that farms using bST would have higher milk production per cow without bST? Keep this distinction in mind when reviewing the following data.

Comparison for Farms That Buy All Feed Versus Farms That Grow Forages

Farms specializing in only milk production are a growing trend in New York. In 1999, 20 farms purchased the majority of their feed, including all forages. Less than 10 acres of crops were harvested by the average farm. Table 52 highlights the income and expenses for these 20 farms compared to the income and expenses for 38 farms of similar size that grew their forages. Table 53 compares selected business factors for the two groups of farms. In 1999, the 20 farms buying forages averaged higher rates of return by shipping more milk per cow with less capital investment and had an operating cost that was very similar to the farms growing all forages.

Comparison by Type of Barn and Herd Size

When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have as many of the same physical characteristics as possible as the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd. Table 54 on page 60 includes the average values for the resulting five groups of dairy farms. The average size in the five groups ranges from 47 cows on the small conventional farms to 601 cows on the largest freestall farms. The largest freestall farms averaged the highest milk output per cow and per worker, the lowest total cost of production and investment per cow, and the greatest returns to labor, management and capital. The small freestall farms showed average profits somewhat higher than the large conventional farm businesses.

Farm business charts have been computed for each of the five housing and herd size categories and are on pages 61-65. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance.

Comparison of Data, Same Farms, 1990 - 1999

Follow ten years of growth, change and progress made by 71 New York DFBS farms in Table 60, pages 66 and 67. Although milk receipts per cwt. increased less than two percent, net farm income without appreciation increased 158 percent from 1990 to 1999. Care should be exercised in using these data to indicate change in the dairy industry since the composition of the sample of farms is different from the state as a whole.

Comparison of Farms by bST Usage

Farms adopting bovine somatotropin (bST) experienced greater increases in milk production, had larger herds and were more profitable than farms not adopting bST (Table 61). Forty-three farms used bST in each year 1995, 1996, 1997, 1998 and 1999. In comparison, 53 farms did not use bST in 1995 through 1999.

Farms not using bST showed a 4.7 percent increase in pounds of milk sold per cow, from 17,210 pounds in 1995 to 18,024 pounds in 1999. Farms using bST increased milk sold per cow 5.3 percent, from 22,126 pounds per cow in 1995 to 23,291 pounds per cow in 1999. Farms that used bST in 1995 through 1999 were larger, and increased in size more rapidly than did farms not supplementing with bST. Farms not using bST increased by 6 cows, from an average of 83 cows in 1995 to 89 in 1999. Farms adopting bST increased by 118 cows, up to 495 cows in 1999. Both groups saw an increase in rate of return on all capital and net farm income in 1999. Both groups saw an increase in net worth, with the bST group increasing more rapidly. Debt to asset ratio and debt per cow changed very little over the study period. The reader is again reminded that bST is not solely responsible for the total changes, size alone is a significant factor.

Receipts and Expenses per Hundredweight of Milk and per Cow

Average accrual receipts and expenses per cow and per hundredweight of milk sold are listed for all 314 dairy farms, 164 dairy farms selling less than 20,000 pounds of milk per cow, and 150 dairy farms selling 20,000 pounds and more in Table 62 on page 69. Table 63 on page 70 provides the same list of average accrual receipts and expenses for 99 farms averaging less than 80 cows per farm, 98 farms with 80 to 180 cows and 117 farms with 180 cows or more.

These data are very useful for forward planning or budgeting when a farmer or planner does not have complete and accurate data from his or her own farm business. It is important to use the costs and returns per unit of output that most closely fit the level of production and herd size that is included in the plan. For example, an expansion budget for a 20,000 pound herd should include higher feed costs per cow than a budget for an 18,000 pound herd. Herds with more than 180 cows must budget higher labor costs per cow than smaller herds. These data should also be adjusted to the operating characteristics of the farm being budgeted. Most farms are not average. It is always better to have data on the specific farm being budgeted.

Intensive Grazing Farms vs. Non-Grazing Farms

In 1999, 65 of the 314 DFBS cooperators practiced intensive grazing. This means the dairy herd was on pasture for three months or more and was moved to a new paddock every third day or less and at least 30 percent of the forage was from pasture. The farms using intensive grazing are compared with a control group of non-grazing farms in Table 64. The control group is a selection of non-grazing dairy farms of similar size. In 1999 average net farm income was somewhat higher on intensive grazing farms. Operating cost of producing milk was 20 cents per cwt. lower while total costs were 6 cents per cwt. higher than the costs of production on the control farms. Table 64 also includes a comparison of 13 profitable grazing farms to 25 profitable non-grazing farms. E.B. 2000-11 contains detailed information on New York farms using intensive grazing.

Comparison of Dairy Farm Business Data by Region

Average farm business summary data from five regions of the State are compared in Tables 65 and 66. The largest average farm size, highest average rate of milk production, and highest average farm income came from the Western and Central Plain Region. Dairy farmers in this region have increased milk production 42.6 percent over the last 10 years and they produced milk for an average total cost of $13.91 per hundredweight in 1999. Total milk production has declined 8.8 percent over 10 years in the Northern Hudson and Southeastern New York Region (Figure 2.). This is the region with the highest costs of producing milk and the third lowest returns to labor and management.

Comparison of Farms by Milking Frequency

Twenty-four percent of the 314 DFBS farms utilized three times per day (3X) milking in 1999. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 67.

In 1999, the 3X farms averaged 5 more cows per farm, sold 2 percent more milk per cow, decreased the total cost of producing milk by one percent, and showed an average 12 percent decrease in net farm income, compared to the 3X farm averages for 1998. The 2X farms increased milk output per cow 3.6 percent, decreased total production costs $0.11 per hundredweight but decreased average net farm income $11,053 per farm in 1999 compared to 1998.

The 3X farms compared with the 2X farms averaged 22 percent more milk per cow and 55 percent additional milk per worker in 1999, very similar to the differences found in 1998. In 1999 the average total cost of producing milk was 10 percent lower on 3X farms than on 2X dairies, the same as in 1998. On the average, farmers milking 3X sold more milk per cow and per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2X. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, labor and capital efficiency indicate there are other important management differences contributing to higher profits.

Other Comparisons

Forty-two dairy renter farms were smaller, on average, than the 314 owner-operated farms, but averaged higher returns to equity capital than the average for 314 owned dairy farms (Table 68). E.B. 2000-13 contains detailed information on Eastern New York dairy renters. Data for the top 10 percent of farms by rate of return on all capital without appreciation is presented in Table 69. Additional data for the top 10 percent of farms is presented in many of the first 44 tables of this publication. Summary data for the 314 specialized dairy farms are presented in Table 70.

Table 52.

INCOME & EXPENSE COMPARISON FOR FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 1999

Item	20 Farms Buying Majority of Forages		38 Similar Size Farms Growing Forages	
Number of cows	169		167	
Pounds of Milk Sold	3,429,567		3,290,570	
Income	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Milk sold	$3,015	$14.85	$2,931	$14.87
Dairy cattle	314	1.55	168	.85
Dairy calves	45	0.22	24	.12
Other livestock	1	0.01	0	.00
Crops	2	0.01	31	.16
Miscellaneous	68	0.34	172	.87
Total Accrual Receipts	$3,445	$16.98	$3,326	$16.88
Expenses				
Hired Labor	$300	$1.48	$346	$1.75
Dairy grain & conc.	765	3.77	717	3.64
Dairy Roughage	408	2.01	22	.11
Nondairy	0	0.00	1	.00
Mach. Hire, rent/lease	47	0.23	89	.45
Machinery repairs/veh.	63	0.31	189	.96
Fuel, oil & greaser	27	0.13	54	.27
Replacement livestock	192	0.95	70	.35
Breeding	21	0.10	28	.14
Veterinary & medicine	83	0.41	80	.40
Milk marketing	118	0.58	114	.58
Bedding	46	0.23	28	.14
Milking supplies	70	0.35	75	.38
Cattle lease/rent	2	0.01	1	.01
Custom boarding	25	0.13	25	.13
BST expense	38	0.19	29	.15
Other livestock expenses	30	0.15	45	.23
Fertilizer & lime	1	0.01	82	.42
Seeds & plants	3	0.01	49	.25
Spray, other crop expenses	0	0.00	62	.31
Land/bldg/fence repair	55	0.27	67	.34
Taxes	18	0.09	54	.27
Rent & lease	54	0.26	62	.31
Insurance	23	0.11	43	.22
Utilities	71	0.35	72	.36
Interest paid	150	0.74	162	.82
Miscellaneous	35	0.17	29	.15
Total Operating Expenses	$2,646	$13.04	$2,593	$13.16
Expansion livestock	$141	$0.69	$56	$.28
Machinery depreciation	57	0.28	142	.72
Building depreciation	48	0.24	91	.46
Total Accrual Expenses	$2,892	$14.25	$2,881	$14.62
Net Farm Income (without appreciation)	$553	$2.73	$445	$2.26

Table 53.

SELECTED BUSINESS FACTORS FOR FARMS BUYING MAJORITY OF FORAGES VERSUS SIMILAR SIZE FARMS GROWING FORAGES, 1999

Selected Factors	20 Farms Buying Majority of Forages	38 Farms Growing Forages
Size of Business		
Average number of cows	169	167
Average number of heifers	62	127
Milk sold, lbs.	3,429,567	3,290,570
Worker equivalent	3.34	4.56
Total tillable acres	54	481
Tillable acres harvested	0	474
Rates of Production		
Milk sold per cow, lbs.	20,311	19,751
Hay DM per acre, tons	0.0	2.51
Corn silage per acre, tons	0.0	15.13
Labor Efficiency & Costs		
Cows per worker	51	37
Milk sold/worker, lbs.	1,026,816	721,616
Hired labor cost/cwt.	$1.48	$1.75
Hired labor cost/worker	$29,087	$23,326
Hired labor cost as % of milk sales	9.9%	11.8%
Cost Control		
Grain & conc. purchased as % of milk sales	25%	24%
Grain & conc. per cwt. milk	$3.77	$3.64
Dairy feed & crop expense per cwt. milk	$5.78	$4.73
Labor & mach. costs/cow	$721	$1,160
Total farm operating costs per cwt. sold	$13.04	$13.16
Interest costs per cwt. milk	$0.74	$0.82
Milk marketing costs per cwt. milk sold	$0.58	$0.58
Operating cost of producing cwt. of milk	$11.61	$11.43
Capital Efficiency(average for the year)		
Farm capital per cow	$3,651	$6,955
Mach. & equip. per cow	$461	$1,400
Asset turnover ratio	0.96	0.50
Income Generation		
Gross milk sales per cow	$3,015	$2,931
Gross milk sales per cwt.	$14.85	$14.87
Net milk sales per cwt.	$14.27	$14.30
Dairy cattle sales per cow	$314	$168
Dairy calf sales per cow	$45	$24
Profitability		
Net farm income w/o apprec.	$93,495	$74,342
Net farm income w/apprec.	$106,683	$102,797
Labor & mgt. income per oper./manager	$61,233	$18,815
Rate of return on equity capital w/o apprec.	29.9%	2.9%
Rate of return on all capital w/o apprec.	13.01%	4.2%
Cash flow		
Principal & int. payments per cow, 1999	$615	$457
Net cash flow	$113,775	$136,386
Financial Summary		
Farm net worth, end year	$217,187	$780,005
Farm net worth change from last year, %	44.9%	6.5%
Debt to asset ratio	0.68	0.35
Farm debt per cow	$2,515	$2,456

Table 54.

SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE
292 New York Dairy Farms, 1999

Item	Farms with:	Conventional <= 60 Cows	Conventional >60 Cows	Freestall <=150 Cows	Freestall 151-300 Cows	Freestall ≥300 Cows
Number of farms		53	52	63	55	69
Cropping Program Analysis						
Total Tillable acres		163	296	308	557	1,149
Tillable acres rented*		60	124	141	261	531
Hay crop acres*		104	177	164	266	486
Corn silage acres*		27	61	85	196	515
Hay crop, tons DM/acre		1.9	2.2	2.4	2.7	3.6
Corn silage, tons/acre		11.8	14.7	14.1	15.2	17.3
Oats, bushels/acre		38	63	45	61	36
Forage DM per cow, tons		6.6	8.2	7.7	7.9	7.9
Tillable acres/cow		3.5	3.4	2.9	2.5	1.9
Fert. & lime exp./tillable acre		$19.93	$22.70	$26.23	$33.97	$36.28
Total machinery costs		$25,558	$47,622	$56,876	$119,638	$285,367
Machinery cost/tillable acre		$157	$161	$185	$215	$248
Dairy Analysis						
Number of cows		47	87	105	219	601
Number of heifers		34	70	74	165	436
Milk sold, lbs.		794,585	1,572,844	2,019,084	4,572,742	13,630,992
Milk sold/cow, lbs.		16,920	18,027	19,267	20,833	22,694
Operating cost of prod. milk/cwt.		$10.15	$10.40	$11.34	$11.27	$11.34
Total cost of prod. milk/cwt.		$17.63	$15.88	$15.85	$14.65	$13.70
Price/cwt. milk sold		$14.86	$14.85	$14.85	$14.98	$14.89
Purchased dairy feed/cow		$694	$648	$787	$790	$911
Purchased dairy feed/cwt. milk		$4.11	$3.58	$4.09	$3.78	$4.02
Purchased grain & conc. as % milk rec.		25%	23%	25%	24%	25%
Purchased feed & crop exp./cwt. milk		$4.82	$4.55	$5.01	$4.67	$4.75
Capital Efficiency						
Farm capital/worker		$195,392	$210,516	$252,922	$249,401	$266,995
Farm capital/cow		$8,315	$7,453	$7,347	$6,514	$5,931
Farm capital/tillable acre owned		$3,794	$3,770	$4,619	$4,820	$5,768
Real estate/cow		$4,222	$3,298	$3,330	$2,561	$2,269
Machinery investment/cow		$1,734	$1,565	$1,423	$1,239	$1,004
Asset turnover ratio		0.37	0.43	0.46	0.58	0.67
Labor Efficiency						
Worker equivalent		2.00	3.08	3.05	5.72	13.35
Operator/manager equivalent		1.33	1.59	1.46	1.79	2.13
Milk sold/worker, lbs.		397,293	510,664	661,995	799,430	1,021,048
Cows/worker		24	28	34	38	45
Labor cost/cow		$872	$709	$614	$617	$653
Labor cost/tillable acre		$251	$208	$209	$243	$342
Profitability & Balance Sheet Analysis						
Net farm income (without appreciation)		$25,834	$50,194	$45,437	$115,430	$337,256
Labor & management income/operator		$ 3,537	$12,243	$10,141	$38,510	$113,628
Rate return on all capital with appreciation		2.0%	4.8%	4.5%	9.5%	12.3%
Farm debt/cow		$1,967	$1,965	$2,633	$2,607	$2,901
Percent equity		76%	74%	64%	61%	52%

*Average of all farms, not only those reporting data.

Table 55.

FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS
53 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
3.36	60	1,249,557	23,442	4.1	24	42	866,834
2.82	57	1,097,188	21,649	3.2	20	34	623,722
2.49	54	997,166	19,974	2.7	17	31	511,506
2.16	52	951,687	18,273	2.3	15	27	431,444
1.98	51	842,501	17,468	2.0	14	26	405,806
1.83	47	771,571	16,658	1.8	11	25	382,448
1.71	46	700,887	15,691	1.6	10	23	352,446
1.52	42	636,598	14,698	1.4	10	20	326,229
1.39	37	553,671	13,054	1.2	8	18	266,346
1.12	30	319,766	8,782	0.9	6	15	193,003

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$291	15%	$284	$892	$398	$3.31
435	19	370	1,109	509	3.52
495	21	430	1,222	630	3.81
537	22	482	1,301	697	4.14
558	22	540	1,361	745	4.56
601	24	580	1,453	784	4.87
670	27	614	1,585	898	5.13
735	30	670	1,707	1,036	5.65
818	33	742	1,847	1,154	6.58
1,066	43	857	2,090	1,343	7.58

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,495	$6.88	$13.66	$67,606	$1,399	$37,900	$56,577
3,255	8.35	14.90	51,727	1,028	24,910	41,828
3,049	8.67	15.48	39,496	861	15,940	25,057
2,849	9.12	16.35	34,679	735	12,211	22,037
2,554	9.98	16.91	29,487	652	8,205	18,746
2,423	10.53	17.89	23,104	532	2,786	15,378
2,294	11.17	19.10	19,484	418	22	12,474
2,169	11.68	20.80	14,070	264	-6,642	9,145
1,960	12.74	23.78	4,661	104	-14,728	2,663
1,208	15.67	29.51	-11,863	-369	-37,507	-11,715

Table 56.

FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS
52 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.87	154	2,730,517	24,029	4.4	24	42	770,362
4.07	106	1,955,695	20,762	3.2	20	38	701,390
3.63	98	1,847,727	19,622	2.8	19	35	659,484
3.24	89	1,657,243	18,787	2.5	18	32	602,209
3.17	81	1,504,242	18,451	2.1	16	30	568,430
2.93	77	1,441,765	17,688	2.0	15	29	524,998
2.72	74	1,362,999	17,211	1.9	14	27	461,326
2.52	70	1,232,960	16,396	1.7	12	25	405,822
2.26	67	1,168,162	15,643	1.4	9	22	371,817
1.80	64	1,018,863	14,002	1.0	7	19	315,077

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$320	12%	$283	$887	$514	$3.03
464	18	422	988	635	3.48
538	20	466	1,072	710	3.77
568	21	515	1,164	774	4.07
608	22	562	1,237	824	4.39
646	24	591	1,307	857	4.64
687	26	629	1,414	881	4.95
723	28	650	1,496	919	5.28
769	30	700	1,644	970	5.68
902	35	837	1,799	1,140	6.74

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,471	$7.60	$13.02	$118,857	$1,145	$54,023	$81,736
3,082	8.82	14.10	83,539	916	37,675	47,776
2,928	9.47	14.49	70,691	847	29,425	36,423
2,810	9.74	15.22	62,069	689	21,755	31,469
2,728	10.20	15.87	51,419	574	17,112	26,330
2,661	10.76	16.40	42,228	489	12,169	21,569
2,553	11.12	16.86	33,666	449	7,566	17,147
2,436	11.51	17.41	29,170	371	1,784	13,183
2,280	12.03	18.26	21,667	294	-9,900	2,177
2,051	13.97	20.60	3,657	64	- 34,295	-20,718

Table 57.

FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS
63 Freestall Barn Dairy Farms with 150 or Less Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.88	147	3,202,363	23,465	5.7	21	59	1,099,774
4.15	141	2,826,420	22,587	3.4	19	46	932,011
3.76	132	2,591,385	21,572	3.0	17	43	819,869
3.40	121	2,430,389	20,668	2.6	17	39	741,613
3.22	115	2,225,447	19,876	2.3	16	38	686,560
2.90	108	2,035,131	19,182	2.1	14	34	640,699
2.59	95	1,724,716	18,501	1.9	13	32	602,729
2.37	85	1,479,864	17,675	1.6	11	29	572,122
2.11	74	1,250,141	15,995	1.4	10	28	497,571
1.62	49	839,593	12,201	1.1	7	19	324,190

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$398	16%	$278	$755	$504	$3.37
532	20	394	907	757	4.15
612	22	422	1,002	872	4.48
648	24	455	1,073	911	4.76
680	25	520	1,125	935	4.95
739	26	542	1,182	981	5.10
775	27	595	1,236	1,033	5.31
833	29	682	1,400	1,093	5.55
929	31	776	1,552	1,176	6.08
1,063	37	908	1,859	1,348	6.82

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3499	$8.40	$13.54	$105,781	$892	$59,306	$132,279
3,279	9.73	14.11	90,022	792	42,957	61,621
3,117	10.28	14.75	77,375	686	35,110	49,786
3,056	10.85	15.38	67,071	571	17,345	41,699
2,995	11.16	15.91	54,109	521	12,461	34,045
2,883	11.46	16.41	36,762	419	7,745	26,599
2,748	11.83	16.66	25,170	293	-692	18,504
2,557	12.33	17.19	16,133	199	-7,054	10,198
2,352	13.43	18.04	8,502	92	-13,987	1,712
1,871	14.47	21.75	- 6,797	- 60	-32,477	-11,848

Table 58

FARM BUSINESS CHART FOR MEDIUM FREESTALL DAIRY FARMS
55 Freestall Barn Dairy Farms with 151-300 Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
8.90	297	6,965,476	25,959	4.8	23	55	1,180,513
7.39	280	6,123,854	24,416	3.8	20	50	994,280
6.60	258	5,579,962	23,228	3.3	18	47	882,331
6.10	238	5,288,803	22,273	3.1	18	42	846,958
5.83	228	4,804,482	21,486	2.9	17	41	812,892
5.57	214	4,348,085	20,629	2.6	16	38	784,754
4.96	198	3,939,776	19,499	2.4	15	36	750,910
4.61	185	3,565,149	18,557	2.2	14	34	701,611
4.29	173	3,283,627	17,405	1.8	11	31	660,157
3.96	156	2,811,352	15,725	1.2	9	28	583,431

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$448	14%	$349	$803	$700	$3.36
637	21	417	896	819	4.11
680	22	455	968	864	4.33
723	23	501	1,054	936	4.46
749	25	537	1,141	962	4.59
782	26	564	1,214	987	4.89
819	27	591	1,305	1,015	4.97
870	28	622	1,380	1,059	5.15
909	30	703	1,478	1,151	5.64
1,038	36	812	1,617	1,296	6.40

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$4,048	$9.11	$12.57	$307,993	$1,287	$155,954	$302,351
3,626	9.86	13.22	217,554	861	110,405	188,506
3,430	10.34	13.79	163,915	757	68,703	146,148
3,298	10.51	14.20	136,148	690	56,765	125,984
3,204	10.89	14.76	128,773	589	45,661	99,684
3,078	11.73	15.08	107,451	484	34,085	73,593
2,918	12.16	15.39	86,609	410	22,418	58,794
2,776	12.72	16.08	64,416	321	11,250	40,024
2,593	13.22	16.68	30,768	158	-3,441	11,494
2,329	14.40	17.78	-26,452	-123	- 47,671	-67,566

Table 59.

FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS
69 Freestall Barn Dairy Farms with 300 or More Cows, New York, 1999

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv-Alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
30.13	1,492	35,463,663	25,925	6.1	24	59	1,398,957
19.38	916	21,330,989	24,421	5.0	21	53	1,234,591
15.37	677	15,899,554	23,720	4.4	20	49	1,126,537
14.46	589	13,831,992	23,381	4.0	19	47	1,064,267
12.13	530	11,689,937	22,842	3.8	19	46	1,009,216
10.93	445	9,793,417	22,157	3.6	17	45	966,074
9.84	406	9,089,815	21,648	3.4	16	43	929,661
8.92	389	8,628,060	21,040	2.9	15	40	872,738
8.13	367	7,712,372	20,420	2.1	14	38	802,159
6.61	322	5,989,077	17,594	1.4	11	33	669,307

Cost Control					
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
$617	32%	$246	$731	$841	$3.97
691	28	368	899	922	4.35
756	27	409	1,022	978	4.44
809	27	442	1,088	1,014	4.59
839	26	471	1,130	1,055	4.70
871	25	494	1,164	1,101	4.82
901	24	515	1,191	1,134	5.00
928	23	548	1,231	1,161	5.13
973	22	605	1,312	1,214	5.38
1,042	20	725	1,441	1,312	6.05

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income Without Apprec. Total	Net Farm Income Without Apprec. Per Cow	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
$3,948	$9.10	$11.71	$1,117,509	$1,035	$737,887	$797,943
3,654	10.15	12.53	679,305	841	331,566	520,123
3,550	10.70	12.97	426,163	752	209,766	338,284
3,455	11.13	13.54	305,873	638	140,966	242,994
3,369	11.51	14.02	258,146	534	98,432	182,176
3,265	11.81	14.33	225,101	437	73,125	149,863
3,197	12.11	14.70	182,181	369	57,971	100,949
3,107	12.37	14.99	143,273	312	39,379	65,273
2,988	12.85	15.22	101,868	250	21,884	15,739
2,681	13.34	16.13	44,602	103	-20,310	-89,510

Table 60.

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 71 New York Dairy Farms, 1990 - 1999

Selected Factors	1990	1991	1992	1993
Milk receipts per cwt. milk	$14.87	$12.93	$13.53	$13.20
Size of Business				
Average number of cows	139	148	168	183
Average number of heifers	120	127	129	140
Milk sold, cwt.	25,551	27,592	32,405	35,607
Worker equivalent	4.02	4.25	4.55	4.74
Total tillable acres	404	418	434	450
Rates of Production				
Milk sold per cow, lbs.	18,410	18,700	19,344	19,426
Hay DM per acre, tons	2.8	2.3	2.7	2.7
Corn silage per acre, tons	13	13	13	15
Labor Efficiency				
Cows per worker	35	35	37	39
Milk sold per worker, lbs.	636,168	649,574	712,907	751,203
Cost Control				
Grain & concen. purchased as % of milk sales	28%	29%	28%	28%
Dairy feed & crop expense per cwt. milk	$5.25	$4.73	$4.80	$4.68
Operating cost of producing cwt. milk	$10.95	$9.94	$10.06	$9.84
Total cost of producing cwt. milk	$16.51	$15.18	$15.14	$14.73
Hired labor cost per cwt.	$1.49	$1.37	$1.38	$1.47
Interest paid per cwt.	$0.94	$0.97	$0.82	$0.78
Labor & machinery costs per cow	$1,071	$1,029	$1,053	$1,065
Replacement livestock expense	$3,213	$2,979	$4,501	$5,801
Expansion livestock expense	$8,125	$15,765	$19,591	$13,567
Capital Efficiency				
Farm capital per cow	$7,270	$7,394	$7,484	$7,500
Machinery & equipment per cow	$1,437	$1,472	$1,468	$1,478
Real estate per cow	$3,307	$3,442	$3,559	$3,539
Livestock investment per cow	$1,518	$1,526	$1,519	$1,537
Asset turnover ratio	0.48	0.43	0.45	0.44
Profitability				
Net farm income without appreciation	$66,802	$38,204	$70,431	$67,218
Net farm income with appreciation	$81,907	$58,764	$91,584	$86,210
Labor & management income per operator/manager	$22,650	$-457	$26,982	$19,654
Rate return on:				
Equity capital with appreciation	3.6%	0.2%	3.1%	2.5%
All capital with appreciation	5.1%	2.9%	4.2%	3.8%
All capital without appreciation	3.7%	0.8%	2.3%	2.2%
Financial Summary, End Year				
Farm net worth	$621,880	$632,215	$722,813	$743,866
Change in net worth with appreciation	$32,231	$7,461	$50,707	$33,816
Debt to asset ratio	0.31	0.33	0.30	0.32
Farm debt per cow	$2,240	$2,295	$2,167	$2,192

Table 60. (continued)

COMPARISON OF FARM BUSINESS SUMMARY DATA
Same 71 New York Dairy Farms, 1990 - 1999

1994	1995	1996	1997	1998	1999
$13.50	$13.06	$14.96	$13.70	$15.70	$15.07
198	215	229	240	252	262
154	167	176	189	202	209
41,179	45,127	48,774	52,329	54,649	58,918
5.09	5.52	5.71	5.93	6.19	6.51
471	498	527	547	565	596
20,812	20,985	21,264	21,805	22,046	22,470
3.0	2.6	2.7	2.4	2.9	2.7
16	14	14	14	16	14
39	39	40	40	41	40
809,018	817,518	854,186	882,445	882,859	905,038
27%	27%	29%	31%	24%	24%
$4.51	$4.37	$5.27	$5.29	$4.97	$4.60
$9.89	$10.20	$11.13	$11.32	$10.74	$10.36
$14.68	$14.74	$15.80	$15.83	$15.31	$15.10
$1.42	$1.42	$1.47	$1.46	$1.48	$1.53
$0.74	$0.82	$0.80	$0.83	$0.79	$0.68
$1,090	$1,069	$1,127	$1,109	$1,145	$1,247
$7,063	$3,972	$4,967	$5,762	$10,287	$9,569
$13,053	$11,342	$9,128	$10,683	$10,734	$13,953
$7,448	$7,310	$7,282	$7,372	$7,355	$7,516
$1,470	$1,445	$1,440	$1,468	$1,480	$1,546
$3,461	$3,397	$3,366	$3,405	$3,343	$3,286
$1,563	$1,530	$1,508	$1,510	$1,510	$1,560
0.46	0.43	0.49	0.43	0.53	0.51
$87,750	$79,332	$111,602	$59,035	$176,768	$172,154
$106,802	$91,236	$125,830	$65,931	$204,958	$200,446
$31,199	$23,562	$47,125	$2,255	$73,866	$75,832
3.9%	0.2%	5.0%	-2.3%	11.8%	9.0%
4.5%	2.7%	5.6%	1.2%	9.6%	7.8%
3.2%	2.2%	4.4%	0.9%	7.8%	6.2%
$794,049	$832,489	$911,420	$902,044	$1,034,265	$1,139,916
$52,937	$41,192	$72,321	$-9,094	$129,918	$107,836
0.31	0.32	0.30	0.33	0.30	0.28
$2,165	$2,141	$2,102	$2,212	$2,039	$2,017

Table 61.

bST NON-USERS VS. USERS
Same 96 Farms, 1995 - 1999

	53 Farms Not Using bST in 1995 - 1999					43 Farms Using bST in 1995 - 1999				
Selected Factors	1995	1996	1997	1998	1999	1995	1996	1997	1998	1999
Size of Business										
Average number of cows	83	86	86	88	89	377	415	445	469	495
Average number of heifers	66	68	70	68	71	281	305	339	378	383
Milk sold, cwt.	14,366	14,692	15,145	15,515	15,963	83,385	92,054	101,784	106,300	115,185
Worker equivalent	2.91	2.74	2.82	2.80	2.80	8.82	9.46	10.22	10.81	11.33
Total tillable acres	268	273	281	278	281	783	850	888	917	988
Rates of Production										
Milk sold per cow, lbs.	17,210	17,166	17,522	17,574	18,024	22,126	22,189	22,860	22,675	23,291
Hay DM per acre, tons	2.1	2.3	2.1	2.3	2.3	3.5	3.2	3.0	3.7	3.1
Corn silage per acre, tons	12	12	11	11	13	16	16	16	19	16
Labor Efficiency										
Cows per worker	29	31	30	31	32	43	44	44	43	44
Milk sold per worker, lbs.	493,677	536,204	537,057	554,107	570,107	945,408	973,087	995,930	983,349	1,016,637
Cost Control										
Grain & conc. purchased as percent of milk sales	28%	31%	32%	26%	25%	26%	29%	32%	25%	24%
Dairy feed and crop expense per cwt. milk	$4.50	$5.60	$5.34	$5.11	$4.81	$4.20	$5.24	$5.33	$4.91	$4.68
Labor and mach. costs per cow	$1,091	$1,099	$1,107	$1,171	$1,308	$1,007	$1,093	$1,070	$1,128	$1,215
Operating cost of producing milk per cwt.	$10.39	$11.19	$11.10	$11.07	$10.21	$10.24	$11.83	$11.68	$11.39	$11.38
Capital Efficiency (avg. for year)										
Farm capital per cow	$7,293	$7,205	$7,318	$7,446	$7,950	$6,301	$6,291	$6,411	$6,569	$6,762
Machinery and equip. per cow	$1,557	$1,532	$1,570	$1,603	$1,811	$1,103	$1,135	$1,192	$1,214	$1,261
Asset turnover ratio	0.38	0.44	0.40	0.46	0.44	0.57	0.64	0.58	0.65	0.63
Profitability										
Net farm income w/o apprec.	$19,890	$35,169	$18,525	$43,157	$49,446	$139,608	$184,922	$102,463	$296,078	$285,606
Net farm income with apprec.	$27,482	$42,077	$23,380	$56,335	$64,283	$166,882	$202,806	$118,563	$347,181	$348,503
Labor & management income per op/mgr.	$-7,456	$5,453	$-8,077	$12,602	$13,963	$52,625	$82,916	$14,340	$131,415	$131,739
Rate return on equity capital with appreciation	-6.5%	-0.1%	-3.1%	3.9%	5.4%	6.2%	9.0%	1.2%	18.9%	13.8%
Rate return on all capital with appreciation	-0.7%	2.7%	-0.2%	5.2%	5.8%	6.8%	8.0%	4.2%	12.7%	10.4%
Financial Summary (end of year)										
Farm net worth	$422,206	$441,494	$445,783	$474,804	$514,987	$1,300,647	$1,420,514	$1,411,842	$1,661,482	$1,865,405
Debt to asset ratio	0.26	0.25	0.25	0.24	0.22	0.39	0.40	0.43	0.40	0.39
Farm debt per cow	$1,863	$1,770	$1,811	$1,758	$1,742	$2,241	$2,326	$2,569	$2,452	$2,435

Table 62.

FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION
314 New York Dairy Farms, 1999

Item	314 Dairy Farms		164 Dairy Farms Milk/Cow <20,000#		150 Dairy Farms Milk/Cow ≥20,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$3,190	$14.91	$2,598	$14.97	$3,417	$14.89
Dairy cattle	196	0.92	186	1.07	201	0.87
Dairy calves	26	0.12	21	0.12	28	0.12
Other livestock	9	0.04	8	0.05	10	0.04
Crops	74	0.35	63	0.36	79	0.34
Government receipts	84	0.39	102	0.59	78	0.34
All other	50	0.23	51	0.29	50	0.22
TOTAL ACCRUAL RECEIPTS	$3,630	$16.96	$3,029	$17.45	$3,862	$16.83
ACCRUAL EXPENSES						
Labor: Hired	$457	$2.14	$258	$1.49	$531	$2.31
Feed: Dairy grain & concentrate	800	3.74	687	3.96	844	3.68
Dairy roughage	48	0.22	37	0.21	52	0.23
Nondairy	0	0.00	0	0.00	0	0.00
Machinery:Machine hire, rent & lease	85	0.40	65	0.37	92	0.40
Machinery repairs & vehicle expense	166	0.78	167	0.96	166	0.72
Fuel, oil & grease	52	0.24	57	0.33	51	0.22
Livestock: Replacement livestock	52	0.24	55	0.32	51	0.22
Breeding	36	0.17	30	0.17	38	0.17
Vet & medicine	101	0.47	69	0.40	113	0.49
Milk marketing	105	0.49	107	0.61	105	0.46
Bedding	41	0.19	22	0.13	48	0.21
Milking supplies	72	0.34	72	0.42	72	0.31
Cattle lease & rent	11	0.05	2	0.01	15	0.06
Custom boarding	32	0.15	10	0.06	40	0.17
bST expense	52	0.24	18	0.11	64	0.28
Other livestock expense	34	0.16	40	0.23	31	0.14
Crops: Fertilizer & lime	74	0.35	78	0.45	73	0.32
Seeds & plants	44	0.20	42	0.24	44	0.19
Spray & other crop expense	51	0.24	42	0.24	55	0.24
Real Estate: Land, building & fence repair	58	0.27	51	0.29	61	0.57
Taxes	44	0.21	60	0.34	38	0.17
Rent & lease	57	0.27	52	0.30	59	0.26
Other: Insurance	34	0.16	44	0.25	31	0.13
Utilities (farm share)	66	0.31	72	0.42	64	0.28
Interest paid	178	0.83	194	0.29	172	0.75
Miscellaneous	37	0.17	29	0.17	40	0.17
TOTAL OPERATING EXPENSES	$2,786	$13.02	$2,359	$13.59	$2,952	$12.86
Expansion livestock	55	0.25	65	0.37	51	0.22
Machinery depreciation	141	0.66	141	0.81	142	0.62
Building depreciation	102	0.48	82	0.47	110	0.48
TOTAL ACCRUAL EXPENSES	$3,084	$14.41	$2,647	$15.24	$3,255	$14.18

Table 63.

FARM RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES
314 New York Dairy Farms, 1999

Item	99 Dairy Farms with <80 Cows		98 Dairy Farms with 80-180 Cows		117 Dairy Farms with ≥ 180 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
ACCRUAL RECEIPTS						
Milk sales	$2,627	$14.17	$2,856	$14.87	$3,332	$14.93
Dairy cattle	162	0.91	156	0.81	209	0.94
Dairy calves	27	0.15	26	0.13	26	0.12
Other livestock	4	0.02	4	0.02	11	0.05
Crops	22	0.12	38	0.20	88	0.40
Government receipts	114	0.64	117	0.61	74	0.33
All other	73	0.41	47	0.24	49	0.22
TOTAL ACCRUAL RECEIPTS	$3,028	$16.96	$3,243	$16.88	$3,789	$16.98
ACCRUAL EXPENSES						
Labor: Hired	$162	$0.91	$266	$1.38	$531	$2.38
Feed: Dairy grain & concentrate	612	3.43	711	3.70	841	3.77
Dairy roughage	57	0.32	48	0.25	47	0.21
Nondairy	0	0.00	2	0.01	0	0.00
Machinery:Machine hire, rent & lease	52	0.29	73	0.38	91	0.41
Mach. repairs & vehicle expense	180	1.01	188	0.98	160	0.72
Fuel, oil & grease	61	0.34	59	0.31	50	0.22
Livestock: Replacement livestock	44	0.25	48	0.25	53	0.24
Breeding	39	0.22	36	0.19	36	0.16
Vet & medicine	59	0.33	78	0.40	111	0.50
Milk marketing	127	0.71	116	0.60	101	0.45
Bedding	15	0.08	21	0.11	48	0.22
Milking supplies	77	0.43	76	0.40	71	0.32
Cattle lease & rent	0	0.00	0	0.00	15	0.07
Custom boarding	11	0.06	18	0.09	37	0.17
bST expense	15	0.09	28	0.14	61	0.28
Other livestock expense	53	0.30	49	0.25	28	0.13
Crops: Fertilizer & lime	75	0.42	81	0.42	73	0.33
Seeds & plants	39	0.22	47	0.25	43	0.19
Spray & other crop expense	34	0.19	51	0.27	53	0.24
Real Estate: Land, building & fence repair	64	0.36	56	0.29	58	0.26
Taxes	86	0.48	59	0.31	36	0.16
Rent & lease	34	0.19	55	0.29	60	0.27
Other: Insurance	52	0.29	44	0.23	30	0.14
Utilities (farm share)	92	0.52	80	0.42	60	0.27
Interest paid	145	0.81	162	0.84	185	0.83
Miscellaneous	35	0.20	36	0.19	37	0.17
TOTAL OPERATING EXPENSES	$2,224	$12.46	$2,488	$12.95	$2,919	$13.08
Expansion livestock	2	0.01	36	0.19	65	0.29
Machinery depreciation	188	1.06	149	0.77	135	0.60
Building depreciation	69	0.39	87	0.45	109	0.49
TOTAL ACCRUAL EXPENSES	$2,483	$13.92	$2,760	$14.36	$3,228	$14.46

Table 64

INTENSIVE GRAZING FARMS VS. NON-GRAZING FARMS
New York State Dairy Farms, 1999

Item	All Intensive Grazing Farms	Non-Grazing Farms*	Profitable Grazing Farms**	Profitable Non-Grazing Farms***
Number of farms	65	133	13	25
Business Size & Production				
Number of cows	79	82	53	58
Number of heifers	60	61	38	42
Milk sold, lbs.	1,447,650	1,538,191	983,756	1,104,741
Milk sold/cow, lbs.	18,346	18,740	18,454	19,140
Milk plant test, % butterfat	3.68%	3.70%	3.63%	3.69%
Tillable acres, total	227	254	154	189
Hay crop, tons DM/acre	2.1	2.2	1.6	2.2
Corn silage, tons/acre	14.0	13.6	14.6	13.1
Forage DM/cow, tons	5.8	7.6	4.9	7.0
Labor & Capital Efficiency				
Worker equivalent	2.63	2.82	2.01	2.12
Milk sold/worker, lbs.	550,437	545,458	489,431	521,104
Cows/worker	30	29	26	27
Farm capital/worker	$187,311	$213,761	$154,963	$195,179
Farm capital/cow	$6,236	$7,351	$5,877	$7,134
Farm capital/cwt. milk	$34	$39	$32	$37
Milk Production Costs & Returns				
Selected costs/cwt.:				
Hired labor	$1.28	$1.08	$0.71	$0.62
Grain & concentrate	3.38	3.67	3.20	3.46
Purchased roughage	0.27	0.42	0.47	0.58
Replacements purchased	0.25	0.28	0.15	0.29
Vet & medicine	0.37	0.39	0.26	0.37
Milk marketing	0.60	0.64	0.75	0.60
Other dairy expenses	0.91	0.94	0.66	0.90
Operating cost/cwt.	10.53	10.73	8.76	9.35
Total labor cost/cwt.	3.90	3.73	4.29	3.88
Operator resources/cwt.	3.53	3.42	3.97	3.96
Total cost/cwt.	15.87	15.81	14.37	14.72
Average farm price/cwt.	14.85	14.74	14.95	14.67
Return over total costs/cwt.	-1.02	-1.07	$0.58	-0.05
Related Cost Factors				
Hired labor/cow	$235	$202	$131	$118
Total labor/cow	715	700	797	739
Purchased dairy feed/cow	670	766	682	768
Purchased grain & concentrate as % of milk receipts	23%	25%	21%	24%
Vet & medicine/cow	$68	$74	$47	$71
Machinery costs/cow	$545	$531	$477	$491
Feed & crop exp./cwt.	$4.39	$4.96	$4.16	$4.70
Profitability Analysis				
Net farm income (without appreciation)	$42,858	$43,135	$48,940	$47,786
Net farm income per cow (w/o apprec.)	$543	$526	$923	$824
Labor & management income/operator	$13,203	$10,297	$26,586	$21,039
Labor & mgmt. income/operator/cow	$167	$126	$502	$363
Rates of return on:				
Equity capital with appreciation	3.7%	3.7%	12.3%	7.1%
All capital with appreciation	4.4%	4.7%	10.9%	6.9%

*Farms with similar herd size, as the 65 rotational grazing farms.
**Farms with labor and mgmt. income per operator per cow greater than $193, had been grazing at least two years, and forage from pasture at least 40%.
***Farms with similar herd size as the 13 profitable grazing farms and labor and management income per operator per cow greater than $193.

Table 65.

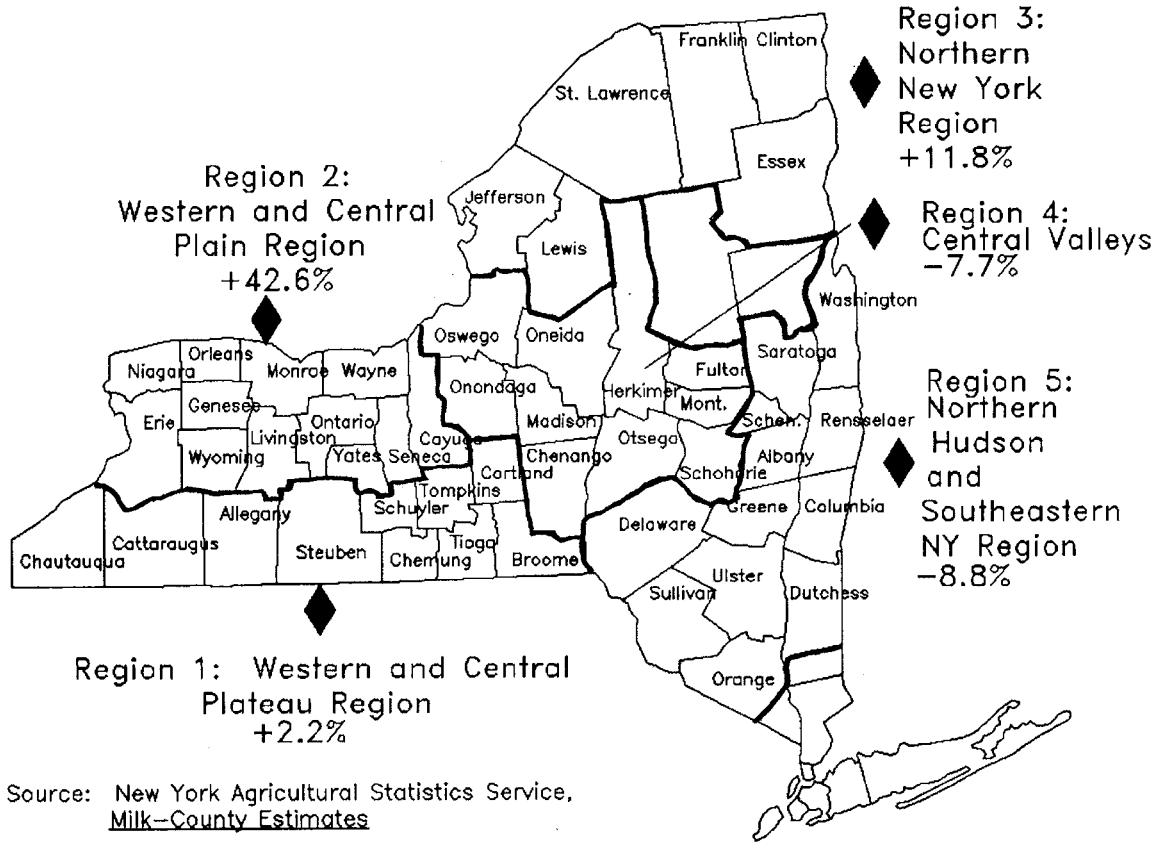
COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION
314 New York Dairy Farms, 1999

Item	West. & Cent. Plateau Region	West. & Cent. Plain Region	Northern New York	Central Valleys	No. Hudson & Southeastern NY
Number of farms	63	95	33	37	86
ACCRUAL EXPENSES					
Hired labor	$57,843	$215,846	$74,046	$28,022	$52,366
Feed	123,496	356,812	167,120	70,167	114,528
Machinery	44,784	117,259	57,161	31,391	49,928
Livestock	63,685	233,584	87,689	48,206	78,702
Crops	24,810	66,630	33,555	16,000	26,509
Real estate	28,053	60,126	28,666	22,056	22,908
Other	48,524	129,597	64,525	31,285	40,767
Total Operating Expenses	$391,193	$1,179,854	$512,761	$247,130	$385,710
Expansion livestock	5,769	27,121	16,910	319	3,962
Machinery depreciation	27,847	51,767	36,136	17,663	16,272
Building depreciation	19,078	43,417	23,297	7,998	9,340
Total Accrual Expenses	$443,887	$1,302,159	$589,104	$273,110	$415,284
ACCRUAL RECEIPTS					
Milk sales	$457,482	$1,327,116	$637,366	$295,303	$436,111
Livestock	33,640	97,983	49,874	21,241	28,120
Crops	3,726	36,837	15,367	5,446	9,183
All other	20,521	52,467	20,811	15,096	22,201
Total Accrual Receipts	$515,369	$1,514,403	$723,419	$337,086	$495,615
PROFITABILITY ANALYSIS					
Net farm income (w/o appreciation)	$71,482	$212,244	$134,315	$63,976	$80,331
Net farm income (w/ appreciation)	$94,951	$266,395	$164,263	$78,432	$91,366
Labor & management income	$34,075	$143,517	$94,260	$34,929	$41,554
Number of operators	1.50	1.78	1.54	1.78	1.65
Labor & mgmt. income/operator	$22,717	$80,628	$61,208	$19,623	$25,184
BUSINESS FACTORS					
Worker equivalent	4.36	9.03	5.03	3.32	4.31
Number of cows	154	401	202	103	139
Number of heifers	115	289	153	80	103
Acres of hay crops*	213	310	281	189	218
Acres of corn silage*	137	319	191	81	119
Total tillable acres	414	771	525	328	388
Pounds of milk sold	3,125,992	8,939,425	4,325,709	1,967,070	2,829,523
Pounds of milk sold/cow	20,317	22,298	21,459	19,028	20,370
Tons hay crop dry matter/acre	2.2	3.7	2.8	2.4	2.4
Tons corn silage/acre	13.8	17.7	16.2	14.7	14.9
Cows/worker	35	44	40	31	32
Pounds of milk sold/worker	716,971	989,970	859,982	592,491	656,502
% grain & conc. of milk receipts	26%	25%	25%	23%	25%
Feed & crop expense/cwt. milk	$4.74	$4.73	$4.64	$4.38	$4.98
Fertilizer & lime/crop acre	$24.38	$36.86	$27.12	$19.69	$34.99
Machinery cost/tillable acre	$199	$246	$202	$171	$194

*Average of all farms in the region, not only those producing the crop.

Figure 2.

Percent Change in Milk Production, Five Regions in New York, 1989-1999



Source: New York Agricultural Statistics Service, Milk-County Estimates

Table 66.

MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK
Five Regions of New York, 1999

Item	Region* 1	2	3	4	5
Milk Production**			(million pounds)		
1989	2,080.9	2,433.0	2,117.8	2,839.7	1,587.1
1999	2,127.6	3,468.6	2,368.7	2,619.8	1,447.4
Percent change	+2.2%	+42.6%	+11.8%	-7.7%	-8.8%
Cost of Producing Milk***			($ per hundredweight milk)		
Operating cost	$10.85	$11.41	$10.26	$10.46	$11.67
Total cost	14.91	13.91	13.59	15.31	15.36
Average price received	14.63	14.85	14.73	15.01	15.41
Return per cwt. to operator labor, management & capital	$2.12	$2.32	$2.94	$3.00	$2.64

*See Figure 2 for region descriptions.
**Source: New York Agricultural Statistics Service, Milk-County Estimates.
***From Dairy Farm Business Summary data.

Table 67.

SELECTED BUSINESS FACTORS BY MILKING FREQUENCY
New York State Dairy Farms, 1998 & 1999

Item	2x/Day Milking		3x/Day Milking	
	1998	1999	1998	1999
Number of farms	220	219	72	74
Business Size & Production				
Number of cows	120	124	472	477
Number of heifers	88	92	348	360
Milk sold, lbs.	2,203,206	2,361,328	10,761,712	11,085,512
Milk sold/cow, lbs.	18,422	19,086	22,812	23,245
Milk plant test, % butterfat	3.71%	3.70%	3.56%	3.63%
Tillable acres, total	344	353	943	960
Hay crop, tons DM/acre	2.6	2.5	3.7	3.3
Corn silage, tons/acre	16.0	14.9	19.7	17.0
Forage DM/cow, tons	8.2	7.8	8.5	7.9
Labor & Capital Efficiency				
Worker equivalent	3.45	3.63	10.83	10.97
Milk sold/worker, lbs.	638,610	650,504	993,695	1,010,530
Cows/worker	35	34	44	43
Farm capital/worker	$230,942	$229,245	$255,161	$273,185
Farm capital/cow	$6,640	$6,711	$5,855	$6,283
Farm capital/cwt. milk	$36.16	$35.24	$25.68	$27.03
Milk Production Costs & Returns				
Selected costs/cwt.:				
Hired labor	$1.55	$1.60	$2.35	$2.45
Grain & concentrate	$3.88	$3.68	$4.04	$3.76
Purchased roughage	$0.20	$0.21	$0.19	$0.22
Replacements purchased	$0.25	$0.25	$0.24	$0.23
Vet & medicine	$0.41	$0.42	$0.47	$0.50
Milk marketing	$0.63	$0.59	$0.46	$0.43
Other dairy expenses	$1.14	$1.01	$1.32	$1.20
Operating costs/cwt.	$11.27	$11.19	$11.58	$11.22
Total labor costs/cwt.	$3.16	$3.40	$2.74	$2.88
Operator resources/cwt.	$2.77	$2.75	$1.28	$1.37
Total costs/cwt.	$15.47	$15.36	$13.93	$13.75
Average farm price/cwt.	$15.77	$14.98	$15.49	$14.85
Return over total costs/cwt.	$0.30	$-0.38	$1.56	$1.10
Related Cost Factors				
Hired labor/cow	$284	$305	$536	$568
Total labor/cow	$581	$647	$624	$670
Purchased dairy feed/cow	$749	$740	$964	$926
Purchased grain & concentrate as % of milk receipts	25%	25%	26%	25%
Vet & medicine/cow	$76	80	$108	$116
Machinery costs/cow	$483	519	$454	$497
Profitability Analysis				
Net farm income (without appreciation)	$73,038	$61,985	$309,697	$276,491
Labor & management income/operator	$27,607	$18,434	$119,021	$94,911
Rates of return on:				
Equity capital with appreciation	9.2%	6.5%	20.3%	16.5%
All capital with appreciation	8.4%	6.5%	14.1%	11.8%

Table 68.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
42 New York Dairy-Renter Farms,* 1999

ACCRUAL EXPENSES	
Labor: Hired	$40,821
Feed: Dairy grain & concentrate	103,271
Dairy roughage	19,508
Nondairy	43
Machinery: Mach. hire, rent & lease	10,868
Mach. repairs & farm vehicle expense	17,159
Fuel, oil, grease	5,668
Livestock: Replacement livestock	13,695
Breeding	4,975
Veterinary & medicine	10,713
Milk marketing	15,229
Bedding	4,787
Milking supplies	9,892
Cattle lease & rent	591
Custom boarding	4,210
bST expense	5,392
Other livestock expense	5,508
Crops; Fertilizer & lime	7,423
Seeds & plants	3,718
Spray & other crop expense	3,734
Real estate: Land, building & fence repair	6,805
Taxes	2,025
Rent & lease	21,005
Other:	
Insurance	4,559
Utilities (farm share)	10,361
Interest paid	13,981
Miscellaneous	4,704
TOTAL OPERATING EXPENSES	$350,647
Expansion livestock	$9,933
Machinery depreciation	12,704
Building depreciation	2,881
TOTAL ACCRUAL EXPENSES	$376,165

ACCRUAL RECEIPTS	
Milk sales	$398,233
Dairy cattle	32,250
Dairy calves	3,841
Other livestock	185
Crops	-2,641
Government receipts	7,465
Custom machine work	2,639
Gas tax refund	331
Other	4,334
TOTAL ACCRUAL RECEIPTS	$446,638
PROFITABILITY ANALYSIS	
Net farm income (without appreciation)	$70,473
Net farm income (with appreciation)	$82,326
Labor & management income/farm	$51,902
Number of operators	1.51
Labor & management income/operator	$34,372
Rate of return on equity capital including appreciation	15.6%
BUSINESS FACTORS	
Number of cows	137
Number of heifers	82
Worker equivalent	3.44
Total tillable acres	241
Milk sold per cow, lbs.	19,450
Hay DM per acre, tons	2.2
Corn silage per acre, tons	14.3
Milk sold per worker, lbs.	776,350
Grain/conc. as % milk sales	26%
Feed & crop expense/cwt. milk	$5.15
Labor & machinery costs/cow	$965
Average price/cwt. milk	$14.91

ASSETS	Jan. 1	Dec. 31
Farm cash, checking & savings	$12,809	$13,488
Accounts receivable	33,582	27,109
Prepaid expenses	114	424
Feed & supplies	62,116	67,493
Dairy cows**	132,458	150,624
Heifers	45,398	53,887
Bulls & other livestock	502	446
Machinery & equipment**	114,052	137,296
Farm Credit stock	3,147	3,477
Other stock & certificates	10,566	13,197
Land & buildings**	55,512	61,444
Total Farm Assets	$470,256	$528,905
Nonfarm Assets****	57,093	92,669
Farm & Nonfarm Assets	$527,349	$621,574

LIABILITIES	Jan. 1	Dec. 31
Accounts payable	$13,685	$13,848
Operating debt	13,297	23,871
Short-term	1,476	301
Advanced gov't receipts	0	0
Current Portion:		
Intermediate	28,095	27,064
Long Term	1,778	2,430
Intermediate***	123,481	134,112
Long term**	51,688	51,611
Total Farm Liabilities	$233,500	$253,237
Nonfarm Liabilities****	2,827	2,720
Farm & Nonfarm Liabilities	$236,327	$255,957
Farm Net Worth	$236,756	$275,668
Farm & Nonfarm Net Worth	$291,022	365,617

*A renter owns no farm real estate or tillable land at the end of year.
**Includes discounted lease payments.
***Includes Farm Credit stock and discounted lease payments for cattle and machinery.
****Average of 18 farms reporting.

Table 69.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 31 Top Ten Percent Farms by Rate of Return on All Capital (without appreciation), 1999

ACCRUAL EXPENSES	
Labor: Hired	$331,511
Feed: Dairy grain & concentrate	526,518
Dairy roughage	40,376
Nondairy	0
Machinery: Mach. hire, rent & lease	52,120
Mach. repairs & farm vehicle expense	82,636
Fuel, oil, grease	25,484
Livestock: Replacement livestock	16,963
Breeding	22,679
Vet & medicine	67,966
Milk marketing	55,331
Bedding	32,994
Milking supplies	38,353
Cattle lease & rent	13,462
Custom boarding	32,411
bST expense	37,221
Other livestock expense	12,385
Crops; Fertilizer & lime	40,221
Seeds & plants	20,313
Spray & other crop expense	22,497
Real estate: Land, building & fence repair	29,561
Taxes	18,368
Rent & lease	36,296
Other:	
Insurance	13,384
Utilities (farm share)	33,096
Interest paid	98,405
Miscellaneous	20,998
TOTAL OPERATING EXPENSES	$1,721,548
Expansion livestock	$46,804
Machinery depreciation	76,971
Building depreciation	59,843
TOTAL ACCRUAL EXPENSES	$1,905,166

ACCRUAL RECEIPTS	
Milk sales	$2,097,843
Dairy cattle	147,253
Dairy calves	16,370
Other livestock	12,441
Crops	66,500
Government receipts	27,446
Custom machine work	1,016
Gas tax refund	170
Other	14,144
TOTAL ACCRUAL RECEIPTS	$2,383,184

PROFITABILITY ANALYSIS	
Net farm income (without appreciation)	$478,018
Net farm income (with appreciation)	529,087
Labor & management income/operator	232,520
Rate of return on equity capital without appreciation	24.4%
Rate of return on all capital without appreciation	15.8%

BUSINESS FACTORS	
Number of cows	598
Number of heifers	432
Worker equivalent	12.33
Total tillable acres	1,064
Milk sold per cow, lbs.	23,463
Hay DM per acre, tons	3.7
Corn silage per acre, tons	17.6
Milk sold per worker, lbs.	1,137,683
Grain/conc. as % milk sales	25%
Feed & crop exp./cwt. milk	$4.63
Labor & mach. costs/cow	$1,069
Average price/cwt. milk	$14.96

ASSETS	Jan. 1	Dec. 31
Farm cash, checking & savings	$ -7,010	$30,739
Accounts receivable	136,844	111,625
Prepaid expenses	2,505	7,487
Feed & supplies	369,177	530,486
Dairy cows*	572,141	622,172
Heifers	244,508	275,194
Bulls & other livestock	5,970	7,195
Machinery & equipment*	531,008	595,651
Farm Credit stock	11,456	13,665
Other stock & certificates	54,807	61,450
Land & buildings*	1,052,104	1,219,603
Total Farm Assets	$2,973,510	$3,475,267
Nonfarm Assets***	54,806	73,120
Farm & Nonfarm Assets	$3,028,316	$3,548,387

LIABILITIES	Jan. 1	Dec. 31
Accounts payable	$37,760	$28,490
Operating debt	124,831	191,830
Short-term	5,303	3,395
Advanced gov't receipts	277	277
Current Portion:		
Intermediate	89,818	113,296
Long Term	32,568	70,924
Intermediate**	575,821	636,219
Long-term*	603,297	576,078
Total Farm Liabilities	$1,469,675	$1,620,509
Nonfarm Liabilities***	917	529
Farm & Nonfarm Liabilities	$1,470,592	$1,621,038
Farm Net Worth	$1,503,835	$1,854,758
Farm & Nonfarm Net Worth	$1,557,724	$1,927,349

*Includes discounted lease payments.
**Includes Farm Credit Stock and discounted lease payments for cattle and machinery.
***Average of 12 farms reporting.

Table 70.

FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION
Average of 314 New York Dairy Farms, 1999

ACCRUAL EXPENSES		ACCRUAL RECEIPTS	
Labor: Hired	$102,335	Milk sales	$174,529
Feed: Dairy grain & concentrate	179,144	Dairy cattle	43,956
Dairy roughage	10,692	Dairy calves	5,799
Nondairy	93	Other livestock	2,084
Machinery: Mach. hire, rent & lease	18,968	Crops	16,664
Mach. repairs & farm vehicle expense	37,198	Government receipts	18,817
Fuel, oil, grease	11,676	Custom machine work	1,465
Livestock: Replacement livestock	11,585	Gas tax refund	230
Breeding	8,019	Other	9,543
Vet & medicine	22,580	- Non-cash capital transfer	18
Milk marketing	23,530	TOTAL ACCRUAL RECEIPTS	$813,071
Bedding	9,229	PROFITABILITY ANALYSIS	
Milking supplies	16,104	Net farm income (without appreciation)	$122,210
Cattle lease & rent	2,529	Net farm income (with appreciation)	151,175
Custom boarding	7,175	Labor & management income/farm	75,578
bST expense	11,644	Number of operators	1.76
Other livestock expense	7,522	Labor & management income/operator	$42,942
Crops; Fertilizer & lime	16,599	Rate of return on equity	
Seeds & plants	9,754	capital including appreciation	12.0%
Spray & other crop expense	11,456		
Real estate: Land, building & fence repair	13,012	BUSINESS FACTORS	
Taxes	9,852	Number of cows	224
Rent & lease	12,841	Number of heifers	164
Other:		Worker equivalent	5.71
Insurance	7,675	Total tillable acres	516
Utilities (farm share)	14,798	Milk sold per cow, lbs.	21,439
Interest paid	39,840	Hay DM per acre, tons	2.9
Miscellaneous	8,266	Corn silage per acre, tons	16.3
TOTAL OPERATING EXPENSES	$624,100	Milk sold per worker, lbs.	839,432
		Grain/conc. as % milk sales	25%
Expansion livestock	$12,263	Feed & crop exp./cwt. milk	$4.75
Machinery depreciation	31,585	Labor & mach. costs/cow	$1,155
Building depreciation	22,913	Average price/cwt. milk	$14.91
TOTAL ACCRUAL EXPENSES	$690,861		

ASSETS	Jan. 1	Dec. 31	LIABILITIES	Jan. 1	Dec. 31
Farm cash, checking & savings	$7,438	$11,648	Accounts payable	$16,693	$16,194
Accounts receivable	59,483	47,988	Operating debt	36,124	51,223
Prepaid expenses	1,404	2,126	Short-term	5,653	5,812
Feed & supplies	137,393	170,328	Advanced gov't rec.	229	60
Dairy cows*	228,897	243,895	Current Portion:		
Heifers	98,121	108,345	Intermediate	38,476	45,200
Bulls & other livestock	1,980	2,060	Long Term	15,237	19,760
Machinery & equipment*	246,428	274,494	Intermediate***	228,699	246,165
Farm Credit stock	5,417	5,637	Long-term**	238,603	239,652
Other stock & certificates	23,871	28,147	Total Farm Liabilities	$579,715	$624,066
Land & buildings*	552,917	595,024	Nonfarm Liabilities****	5,925	5,767
Total Farm Assets	$1,363,349	$1,489,692	Farm & Nonfarm Liabilities	$585,640	$629,833
Nonfarm Assets***	81,791	89,546	Farm Net Worth	$783,634	$865,626
Farm & Nonfarm Assets	$1,445,140	$1,579,238	Farm & Nonfarm Net Worth	$859,500	$949,405

*Includes discounted lease payments.
**Includes Farm Credit stock and discounted lease payments for cattle and machinery.
***Average of 164 farms reporting.

NOTES

APPENDIX

THE ECONOMIC ENVIRONMENT FACING NEW YORK DAIRY FARMERS

The prices dairy farmers pay for a given quantity of goods and services has a major influence on farm production costs. The astute manager will keep close watch on unit costs and utilize the most economical goods and services.

Table A1.

PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1989-1999

Year	Mixed Dairy Feed 16% Protein*	Fertilizer, Urea 45-46%N*	Seed Corn, Hybrid**	Diesel Fuel*	Tractor 50-59 PTO**	Wage Rate All Hired Farm Workers***
	($/ton)	($/ton)	($/80,000 kernels)	($/gal)	($)	($/hr)
1989	189	227	71.40	0.828	17,350	5.25
1990	177	215	69.90	1.080	17,950	5.51
1991	172	243	70.20	0.995	18,650	6.06
1992	174	221	71.80	0.910	18,850	6.42
1993	171	226	72.70	0.900	19,200	6.76
1994	181	233	73.40	0.853	19,800	6.96
1995	175	316	77.10	0.850	20,100	6.92
1996	226	328	77.70	1.020	20,600	7.19
1997	216	287	83.50	0.960	21,200	7.63
1998	199	221	86.90	0.810	21,800	7.63
1999	175	180	88.10	0.750	21,900	8.12

SOURCE: NYASS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices. *Northeast region average. **United States average. ***New York and New England combined.

Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January (February for 1986-89 and April for 1982-85), and an index of the real estate prices.

Table A2.

VALUES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1983-1999

	Dairy Cows		Machinery*	Farm Real Estate	
Year	Value/Head	1977=100	1977=100	Value/Acre	1977=100
1983	850	172	173	817	139
1984	790	160	181	848	144
1985	740	149	181	820	140
1986	770	156	178	843	144
1987	870	176	180	960	164
1988	900	182	189	993	169
1989	1,020	206	201	1,045	178
1990	1,060	214	209	1,014	173
1991	1,040	210	219	1,095	187
1992	1,090	220	226	1,139	194
1993	1,100	222	235	1,237	211
1994	1,100	222	249	1,260	215
1995	1,010	204	258	1,280	218
1996	1,030	208	268	1,260	215
1997	980	198	276	1,250	213
1998	1,050	212	286	1,280	218
1999	1,250	253	294	1,340	228

SOURCE: NYASS, New York Agricultural Statistics and New York Crop and Livestock Report. USDA, ASB, Agricultural Prices.

*United States average; 1995 - 1999 are estimated due to discontinuation of 1977=100 series.

As the number of milk cow operations decreases, the average number of milk cows per operation increases as shown by Chart A1. There were 5,300 less milk cow operations in 1999 than there were in 1989. The average number of milk cows per operation has increased by 30 cows, or 55 percent over the same period. On January 1, 2000, 31 percent of the total milk cows were in herds with 50-99 head, 57 percent were in herds with over 100 milk cows, and 18 percent were in herds with less than 50 head.

Chart A1.

NUMBER OF OPERATIONS WITH MILK COWS AND AVERAGE NUMBER OF MILK COWS PER OPERATION
New York, 1988-1999

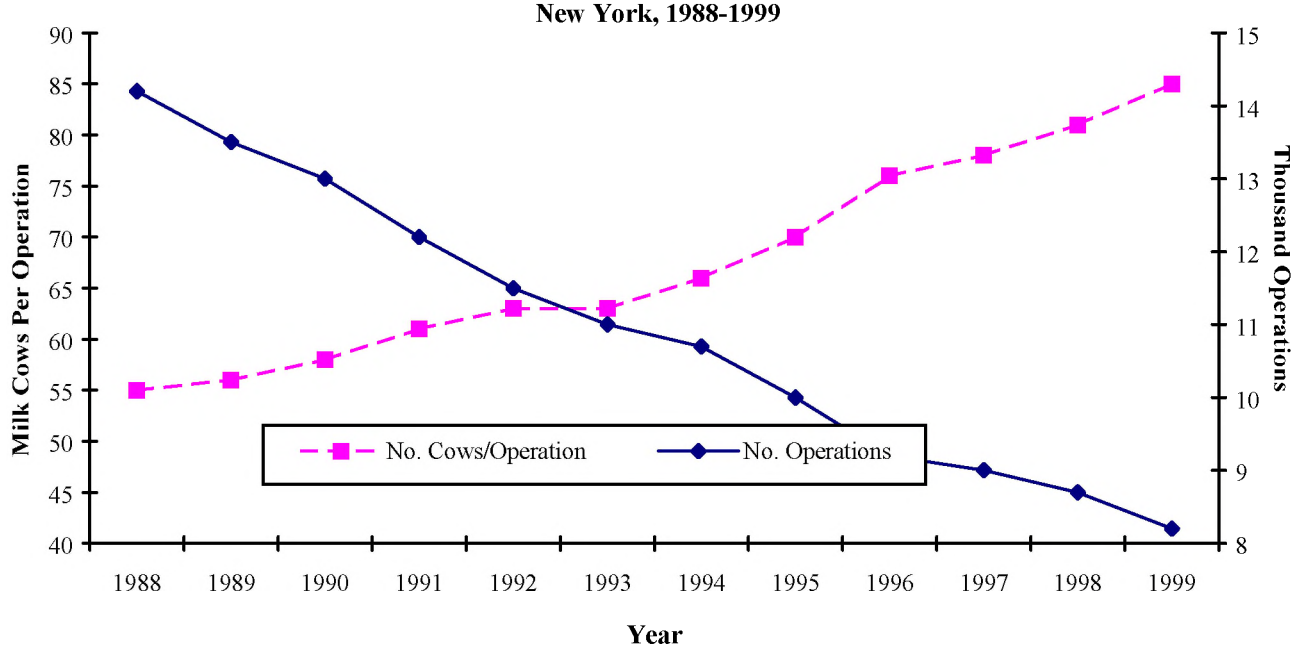


Table A3.

MILK COW OPERATIONS AND MILK COW INVENTORY
by Herd Size, 1988 to 1999

	MILK COW OPERATIONS BY HERD SIZE & TOTAL, 1988-1999 (Number of Milk Cows in Herd)							MILK COWS ON FARMS, JAN. 1 BY HERD SIZE & TOTAL, 1989-2000 (Number of Milk Cows in Herd)						
Year	1-29	30-49	50-99	100-199[a]	200 plus	Total	Year	1-29	30-49	50-99	100-199[a]	200 plus	Total
	(Number of Operations)							(Thousand Head)					
1988	3,200	3,850	5,300	1,850		14,200	1989	30	144	335	271		780
1989	2,700	3,400	5,400	2,000		13,500	1990	29	121	321	289		760
1990	2,650	3,150	5,300	1,900		13,000	1991	27	116	319	288		750
1991	2,500	2,900	5,000	1,800		12,200	1992	24	111	314	291		740
1992	2,600	2,600	4,400	1,900		11,500	1993	22	102	285	190	131	730
1993	2,400	2,500	4,200	1,500	400	11,000	1994	22	87	297	189	130	725
1994	2,400	2,200	4,200	1,500	400	10,700	1995	21	92	277	178	142	710
1995	2,100	2,200	4,000	1,300	400	10,000	1996	19	79	259	189	154	700
1996	1,800	2,000	3,700	1,300	400	9,200	1997	18	73	245	189	175	700
1997	1,700	1,900	3,600	1,300	500	9,000	1998	18	73	238	182	189	700
1998	1,600	1,800	3,500	1,300	500	8,700	1999	14	70	218	189	211	702
1999	1,400	1,600	3,200	1,400	600	8,200	2000	14	70	217	189	210	700

[a]100 plus category prior to 1993.
Source: NYASS, New York Agricultural Statistics, 1998-1999

GLOSSARY AND LOCATION OF COMMON TERMS

Accounts Payable: Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians and other providers of farm services and supplies.

Accounts Receivable: Outstanding receipts from items sold or sales proceeds not yet received such as the payment for December milk sales received in January.

Accrual Accounting: (defined on page 9).

Accrual Expenses: (defined on page 11).

Accrual Receipts: (defined on page 11).

Annual Cash Flow Statement: (defined on page 18).

Appreciation: (defined on page 12).

Asset Turnover Ratio: (defined on page 40).

Available for Debt Service per Cow: Net cash available for debt service after deducting net personal withdrawals for family expenditures, divided by the average number of cows.

Average Top 10% Farms: Average of 30 farms with highest rate of return on all capital (without appreciation).

Balance Sheet: A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth.

Barn Types: Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

bST Usage: An estimate of percentage of herd that was injected with bovine somatotropin during the year.

Business Records: Account Book: any organized farm record book or ledger. Agrifax (mail-in): Farm Credit's recordkeeping service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

Capital Efficiency: The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital. (See analysis, page 40).

Capital Investment: Commonly used as substitute term for farm capital or total farm assets.

Cash Flow: The movement of money in and out of the business over a given period of time, e.g. one year. (See Annual Cash Flow Statement, page 18).

Cash Flow Coverage Ratio: (defined on page 20).

Cash From Nonfarm Capital Used in the Business: Transfers of money from nonfarm savings or investments to the to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

Cash Paid: (defined on page 10).

Cash Receipts: (defined on page 11).

Change in Accounts Payable: (defined on page 11).

Change in Accounts Receivable: (defined under Accrual Receipts on page 11).

Change in Advanced Government Receipts: (defined under Accrual Receipts page 11).

Change in Inventory: (defined on page 10).

Corporation: Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages' and other compensation from operating expenses for DFBS use.

Cost of Producing Milk, Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. (see page 28).

Cost of Term Debt: A weighted average of the cost of borrowed capital to the farm. Calculate by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Do not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

Culling Rate: Culling rate is calculated by dividing the number of animals that left the herd for culling purposes and that died, by the average number of milking and dry cows for the year

Current (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt associated with their growth and maintenance.

Current Portion: Principal due in the next year for intermediate and long term debt.

Current Ratio: Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at end year divided by current farm liabilities at end year.

Dairy Cash-Crop (farm): Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed ten percent of accrual milk receipts.

Dairy Farm Renter: (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

Dairy Grain and Concentrate: All grains, protein supplements, milk substitutes, minerals and vitamins purchased and fed to the dairy herd.

Dairy Records: DHIC: Dairy Herd Improvement Cooperative official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHIC. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

Dairy Roughage: All hay, silage or other fodder purchased and fed to the dairy herd.

Debt Coverage Ratio: (defined on page 20)

Debt Per Cow: Total end-of-year debt divided by end-of-year number of cows.

Debt to Asset Ratios: (defined on page 16).

Depreciation Expense Ratio: The percentage of total accrual receipts that is charged to depreciation expense (machinery and building).

Dry Matter: The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital: The farm operator/manager's owned capital or farm net worth.

Expansion Livestock: Purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year.

Farm Business Chart: (see definition and application on page 42).

Farm Debt Payments as Percent of Milk Sales: Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see pages 20 and 45.

Farm Debt Payments Per Cow: Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart on page 45.

Financial Lease: A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hay Crop: All hayland, including new seedings, harvested once or more as hay or hay crop silage.

Hay Dry Matter: see Dry Matter.

Heifers: Female dairy replacements of all ages.

Hired Labor (expenses): All wages, nonwage compensation, payroll taxes, benefits, and perquisites paid employees.

Hired Labor Expense as % of Milk Sales: The percentage of the gross milk receipts that is used for labor expense. Divide accrual hired labor expense by accrual milk sales.

Hired Labor Expense per Hired Worker Equivalent: The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense by number of hired plus family paid worker equivalents.

Income Statement: A complete and accurate account of farm business receipts and expenses used to measure profitability over a period of time such as one year or one month.

Intensive Grazing: The dairy herd is on pasture at least three months of the year, changing paddock at least every three days and percent of forage from pasture is at least 30 percent.

Interest Expense Ratio: The percentage of total accrual receipts that is used for interest expense

Intermediate (assets and liabilities): Farm business property and associated debt that is turned over from one to ten years.

Labor and Management Income: (defined on page 13).

Labor and Management Income Per Operator: (defined on page 13).

Labor Efficiency: Production capacity and output per worker. (See analysis on pages 40 and 41).

Labor Force: Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators, that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed.

Liquidity: Ability of business to generate cash to make debt payments or to convert assets to cash.

Long-Term (assets and liabilities): Farm real estate and associated debt with typical life of ten or more years.

Milk Marketing (expenses): Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses.

Milking Frequency: 2X/day: all cows were milked two times per day for the entire year. 3X/day: all cows were milked three times per day for the entire year. Other: any combination of 2X, 3X, and more frequent milking.

Milking Systems: Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and then pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone: milking parlor designed to move and milk cows in groups. Other Parlor: parlors in which cows move and are milked individually.

Net Farm Income: (defined on page 12).

Net Farm Income from Operations Ratio: (defined on page 14)

Net Milk Receipts: The mail box price received by farmers before any farmer authorized assignment or deductions.

Net Worth: The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

Nondairy Feed: All grain, concentrates, and roughage purchased and fed to nondairy livestock.

Nonfarm Noncash Capital: (defined on page 11).

Nontillable Pasture: Permanent or semi-permanent pasture land that could not be included in a regular cropping sequence or rotation.

Operating Costs of Producing Milk: (defined on page 31).

Operating Expense Ratio: The percentage of total accrual receipts that is used for operating expenses, excluding interest and depreciation.

Opportunity Cost: The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

Other Forage: All forage crops harvested but not included as hay crops or corn silage, e.g. oats, barley, and sudan grass harvested as roughage.

Other Livestock Expenses: All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

Part-Time Dairy (farm): Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

Partnership: Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

Percent Death Rate: The percentage of the average number of milking and dry cows that died during the year.

Percent of Heifer Inventory Custom Inventory: The percent of current heifer inventory owned by the farm that is being custom raised off the farm.

Percent of Replacements Purchased: The percent of replacements that calved in the herd for replacement purposes (not expansion cattle) in 1998 that were different genetic background than your herd and were purchased.

Percent Sell Rate: The percentage of the average number of milking and dry cows that were sold for culling reasons. Animals that were sold as replacement stock to other dairy farms is not included in this number.

Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments: All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

Prepaid Expenses: (defined on page 11).

Profitability: The return or net income the owner/manager receives for using one or more of his or her resources in the farm business. True "economic profit" is what remains after deducting all costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

Purchased Inputs Costs of Producing Milk: (defined on page 31).

Repayment Analysis: An evaluation of the business' ability to make planned debt payments.

Replacement Livestock: Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

Return on Equity Capital: (defined on page 14).

Return to all Capital: (defined on page 14).

Sole Proprietorship: Business is owned by one individual but there may be more than one operator.

Solvency: The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

Specialized Dairy Farm: A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Statement of Owner Equity (reconciliation): (defined on page 17).

Taxes (expenses): Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are a personal expense for all noncorporate taxpayers.

Tillable Acres: All acres that are normally cropped including hayland that is pastured. Acres that are doubled cropped are counted once.

Tillable Pasture: Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

Total Costs of Producing Milk: (defined on page 31).

Value of Calf Sold: The average value received for bull and heifer calves sold as calves during the year.

Value of Cow Sold: The average value received for animals that were sold for culling reasons.

Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk.

Worker Equivalent: The number of full-time workers equivalent to all the full and part-time people working throughout the year. Operator and family labor is included. Worker equivalents are determined by converting all work to full-time months (based on a 230 hours per month) and dividing by 12.

Working Capital: A theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. Calculated as current farm assets at end year less current farm liabilities at end year.